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PATENT & TRADEMARK OFFICE

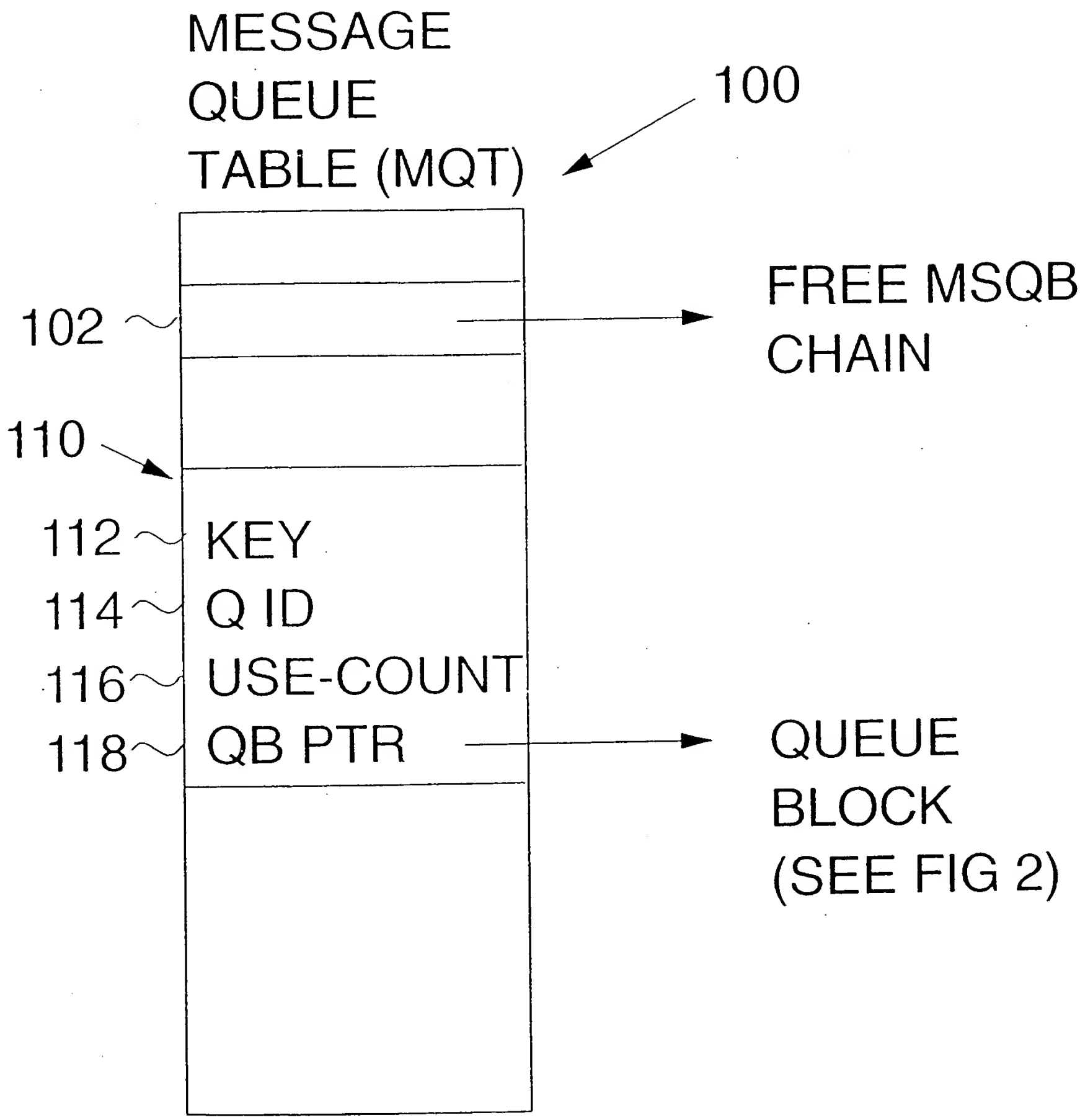


Fig 1

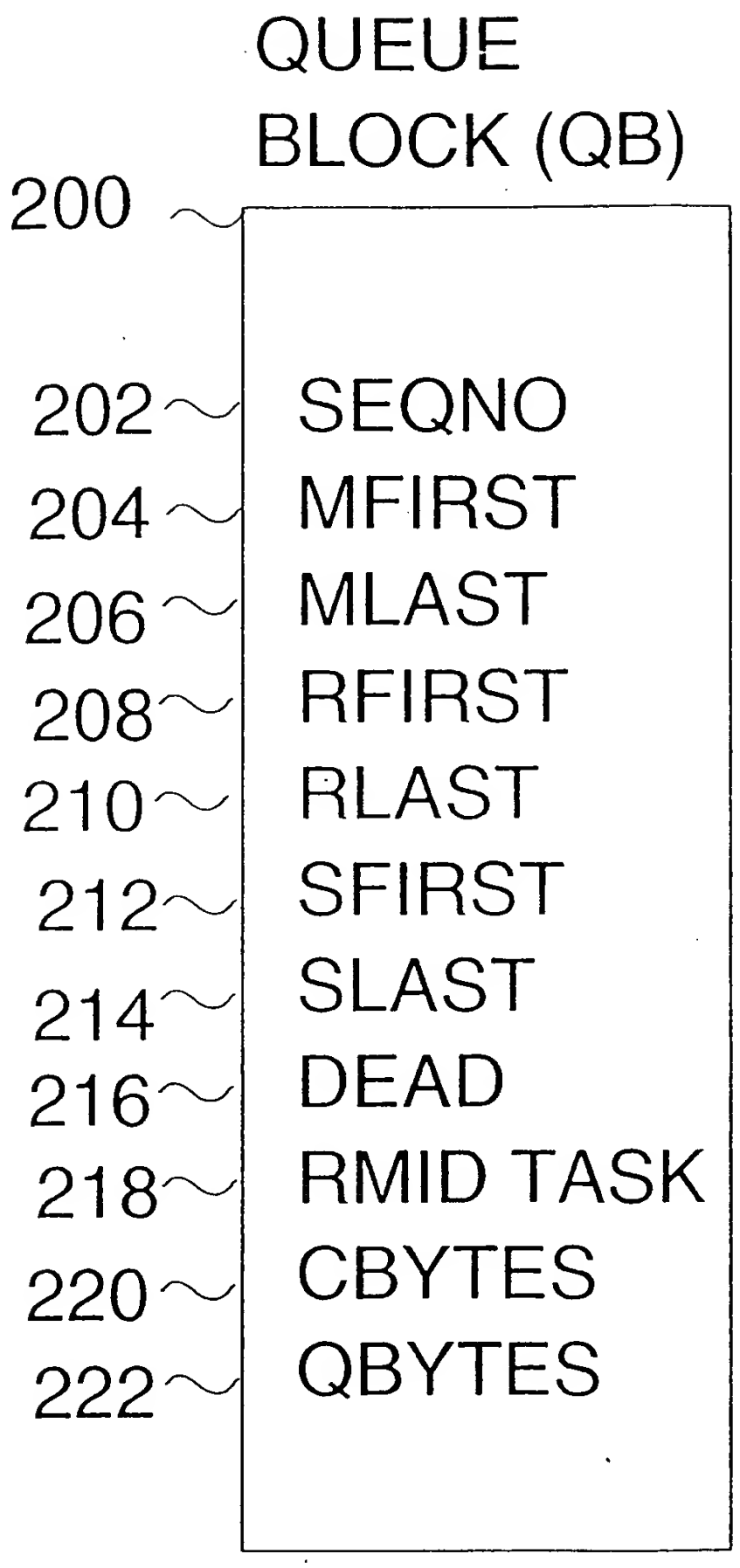

QUEUE
BLOCK (QB)
200
202
SEQNO
204
MFIRST
206
MLAST
208
RFIRST
210
RLAST
212
SFIRST
214
SLAST
216
DEAD
218
RMID TASK
220
CBYTES
222
QBYTES

Fig 2

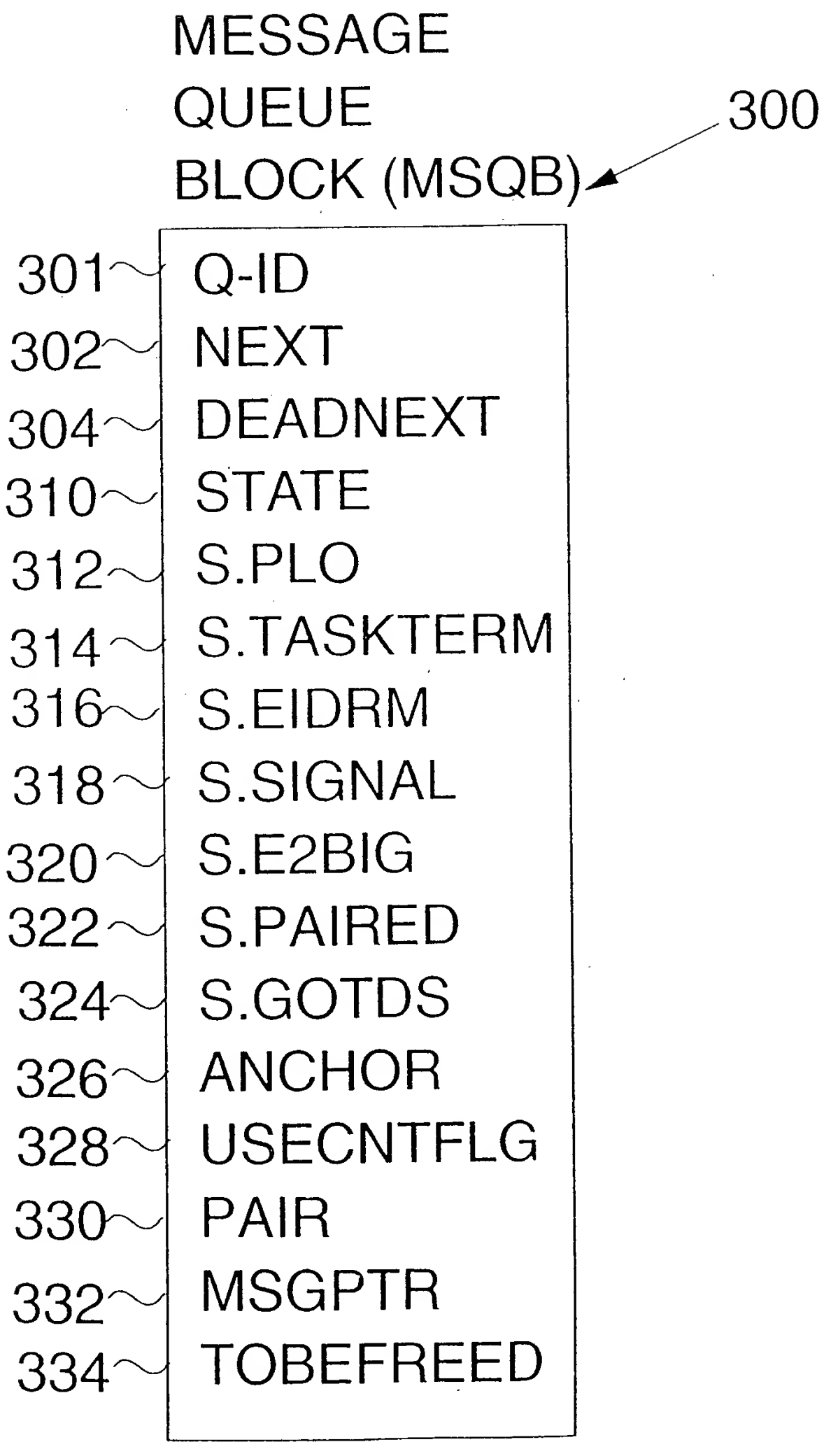

MESSAGE
QUEUE
BLOCK (MSQB)
300
301 Q-ID
302 NEXT
304 DEADNEXT
310 STATE
312 S.PLO
314 S.TASKTERM
316 S.EIDRM
318 S.SIGNAL
320 S.E2BIG
322 S.PAIRED
324 S.GOTDS
326 ANCHOR
328 USECNTFLG
330 PAIR
332 MSGPTR
334 TOBEFREED

Fig 3

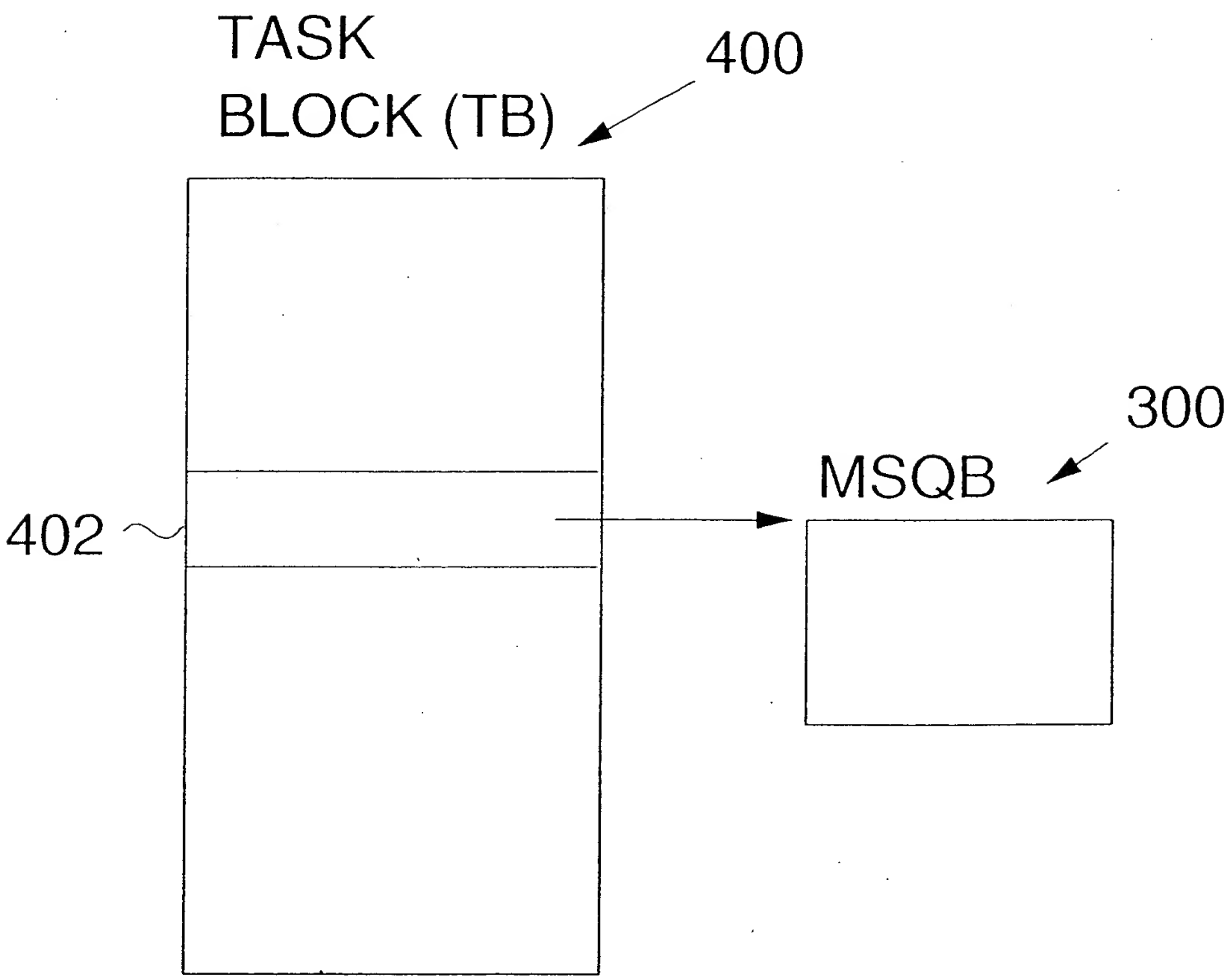


Fig 4

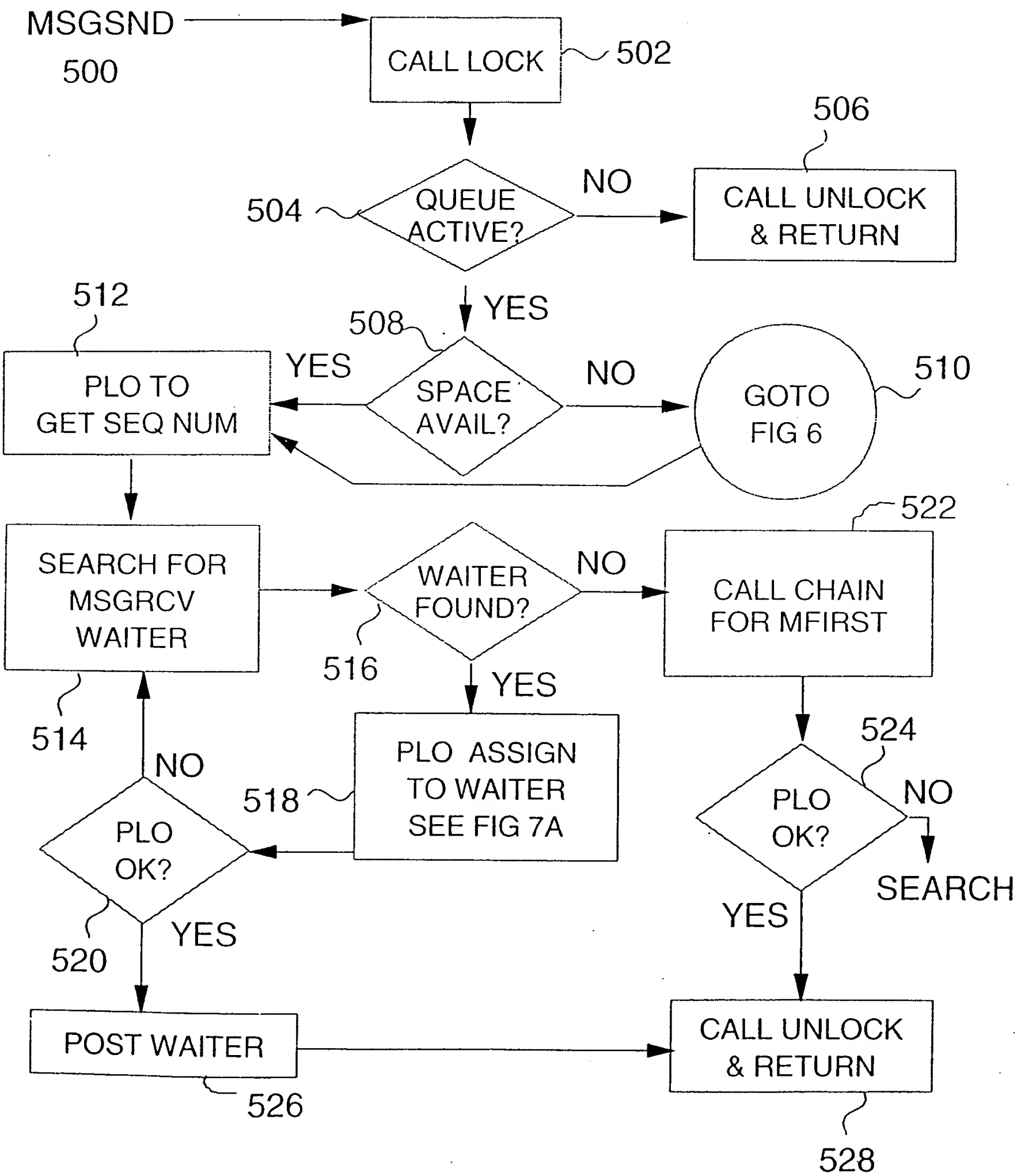

MSGSND
500
CALL LOCK
502
506
504
QUEUE ACTIVE?
NO
CALL UNLOCK & RETURN
YES
512
508
YES
PLO TO GET SEQ NUM
SPACE AVAIL?
NO
510
GOTO FIG 6
522
SEARCH FOR MSGRCV WAITER
WAITER FOUND?
NO
CALL CHAIN FOR MFIRST
516
YES
514
524
NO
PLO ASSIGN TO WAITER SEE FIG 7A
518
PLO OK?
NO
SEARCH
PLO OK?
YES
520
YES
POST WAITER
CALL UNLOCK & RETURN
526
528

Fig 5

MSGSND NO SPACE AVAILABLE

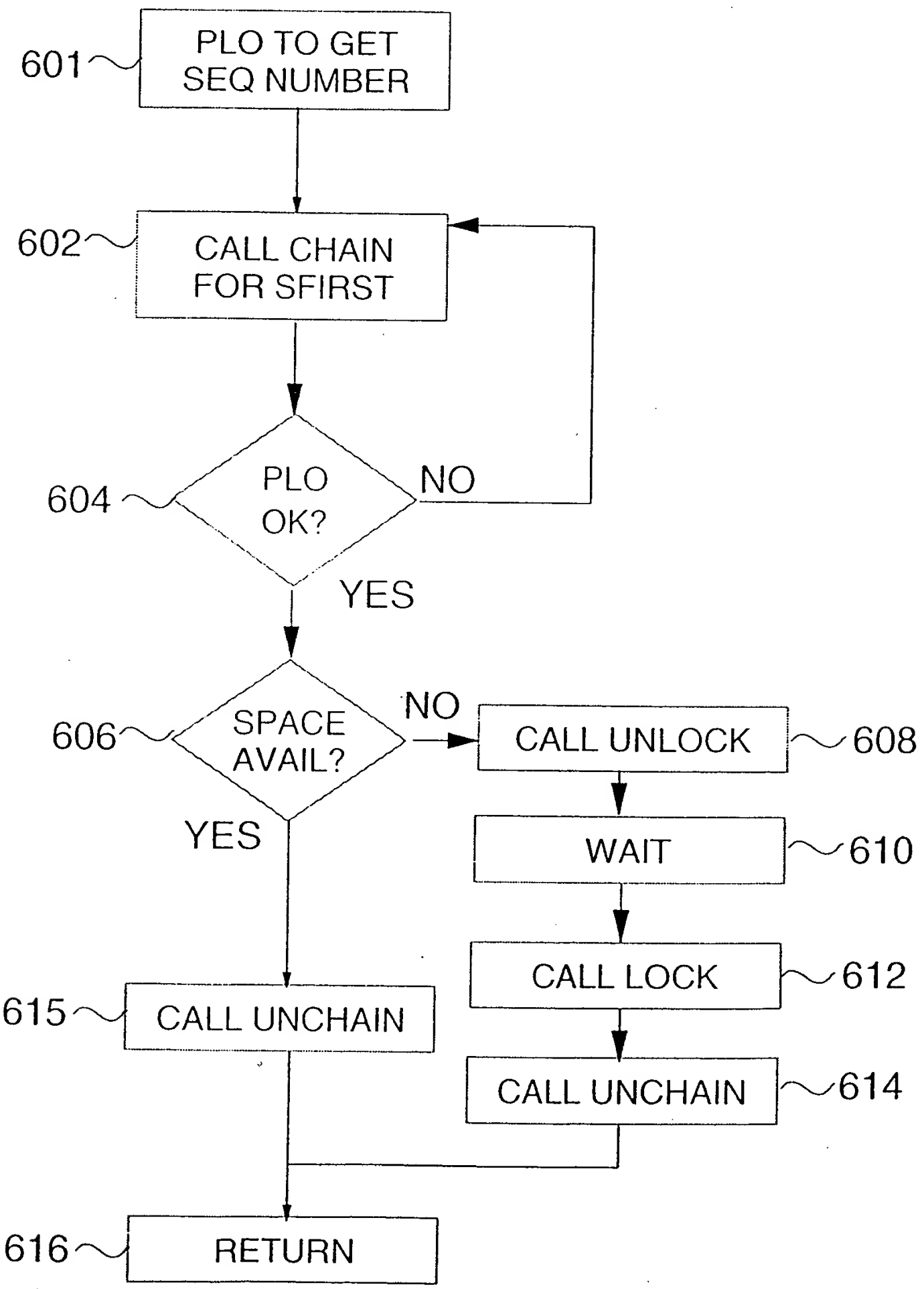


Fig 6

PLO ASSIGN MESSAGE TO WAITER - BEFORE

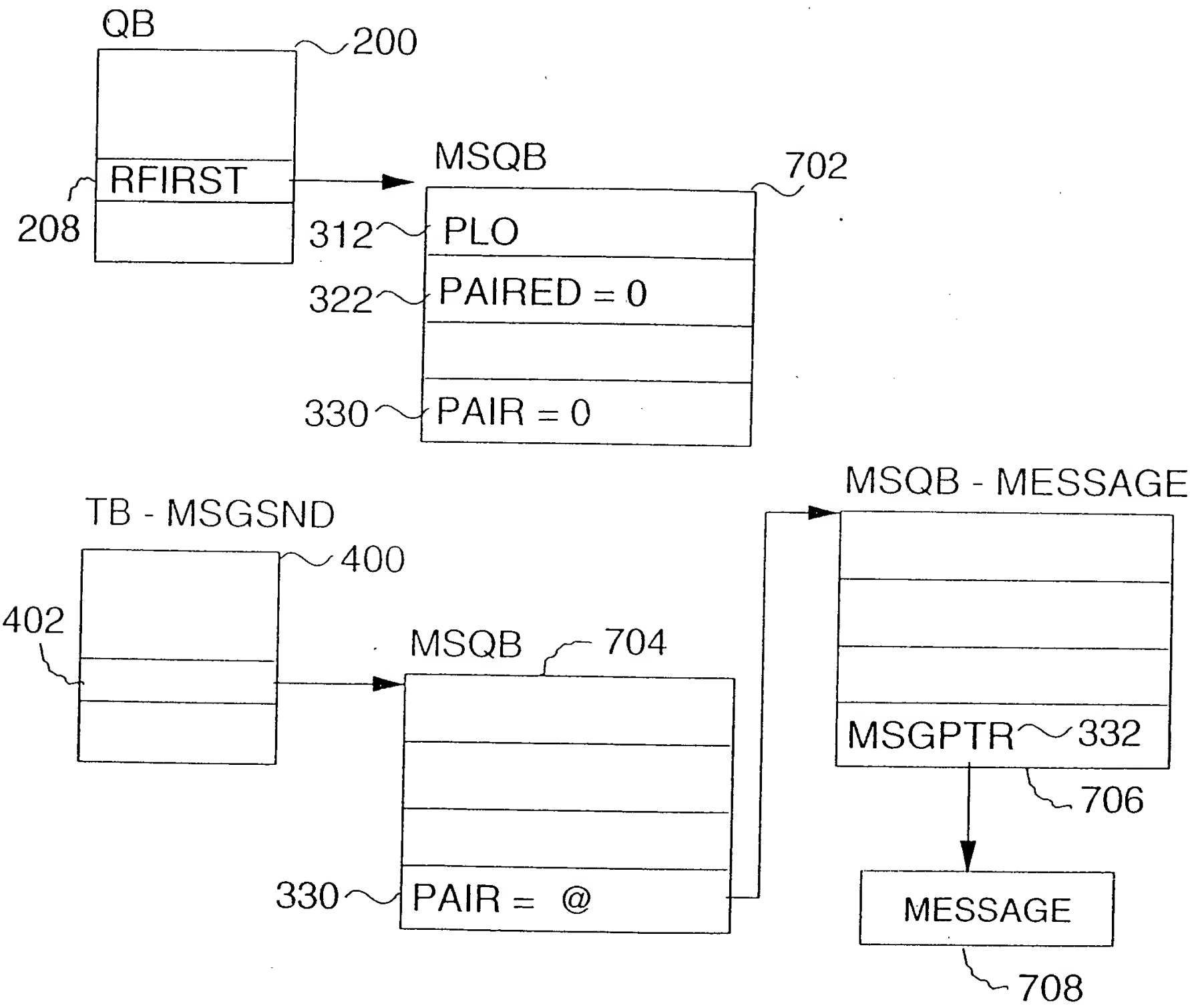


Fig 7

PLO ASSIGN MESSAGE TO WAITER - AFTER

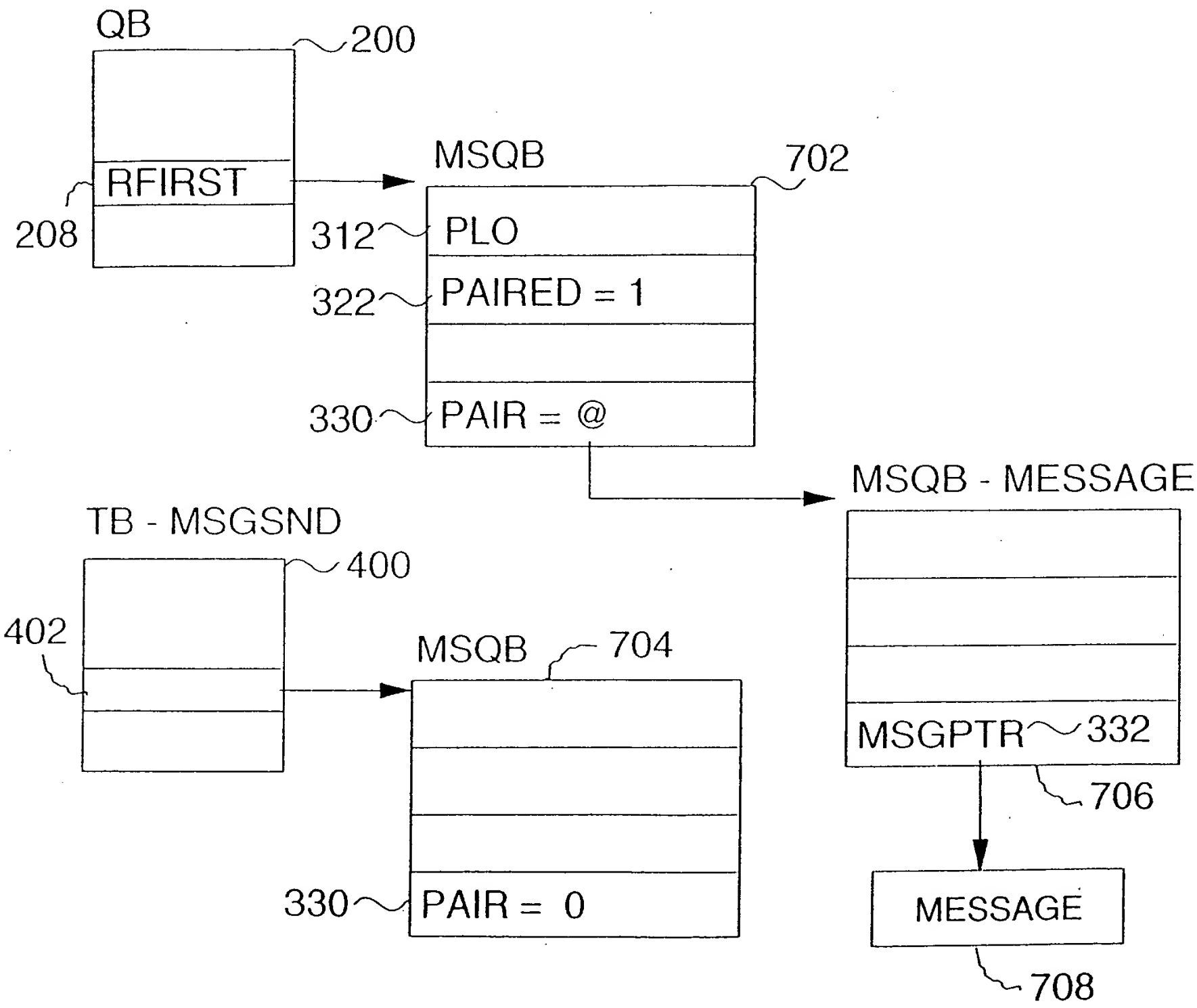


Fig 8

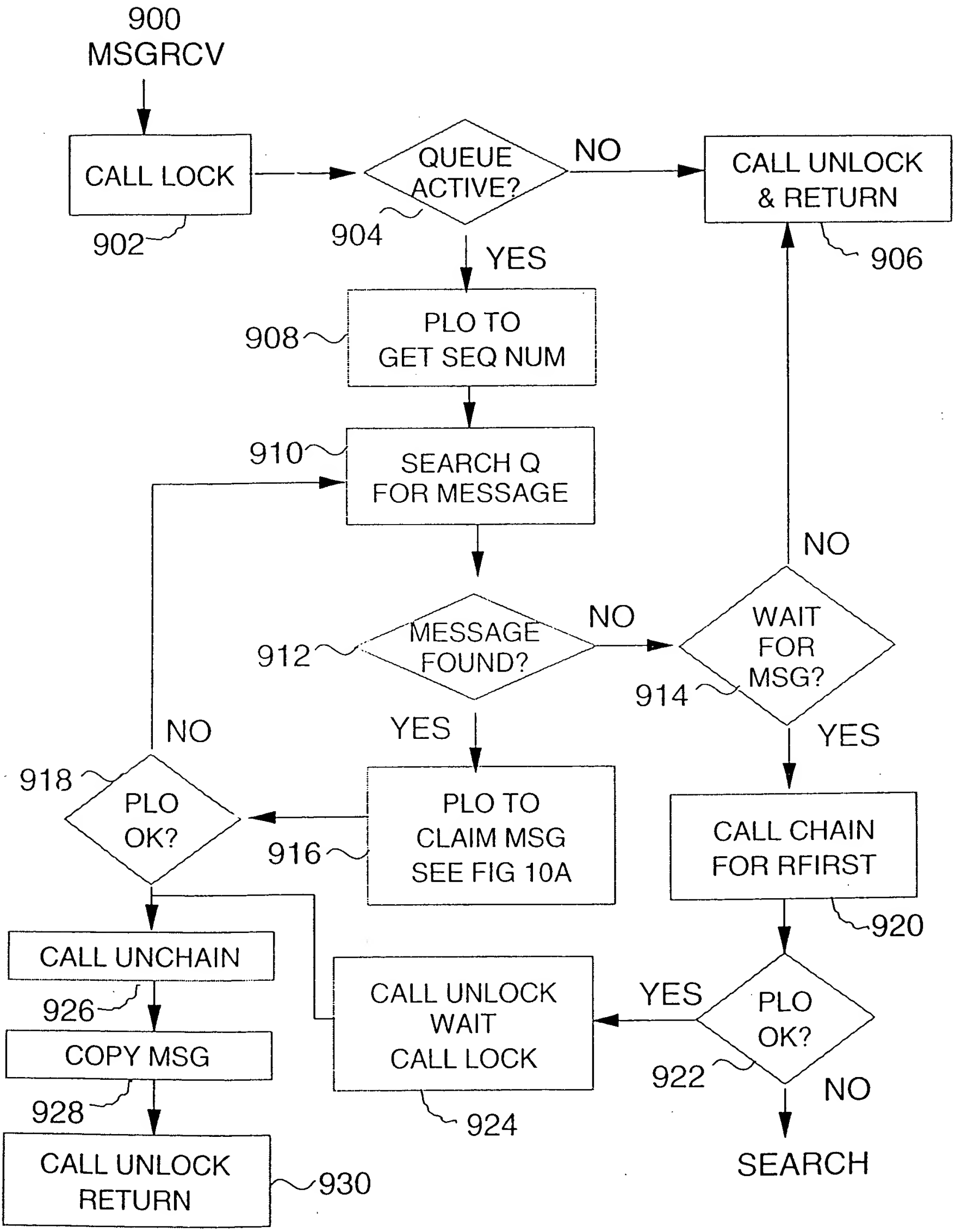

900
MSGRCV
CALL LOCK
902
QUEUE ACTIVE?
904
NO
CALL UNLOCK & RETURN
906
YES
PLO TO GET SEQ NUM
908
SEARCH Q FOR MESSAGE
910
MESSAGE FOUND?
912
NO
WAIT FOR MSG?
914
NO
YES
YES
PLO TO CLAIM MSG SEE FIG 10A
916
PLO OK?
918
NO
CALL CHAIN FOR RFIRST
920
CALL UNCHAIN
926
COPY MSG
928
CALL UNLOCK RETURN
930
CALL UNLOCK WAIT CALL LOCK
924
YES
PLO OK?
922
NO
SEARCH

Fig 9

PLO TO ASSIGN MESSAGE TO CALLER - BEFORE

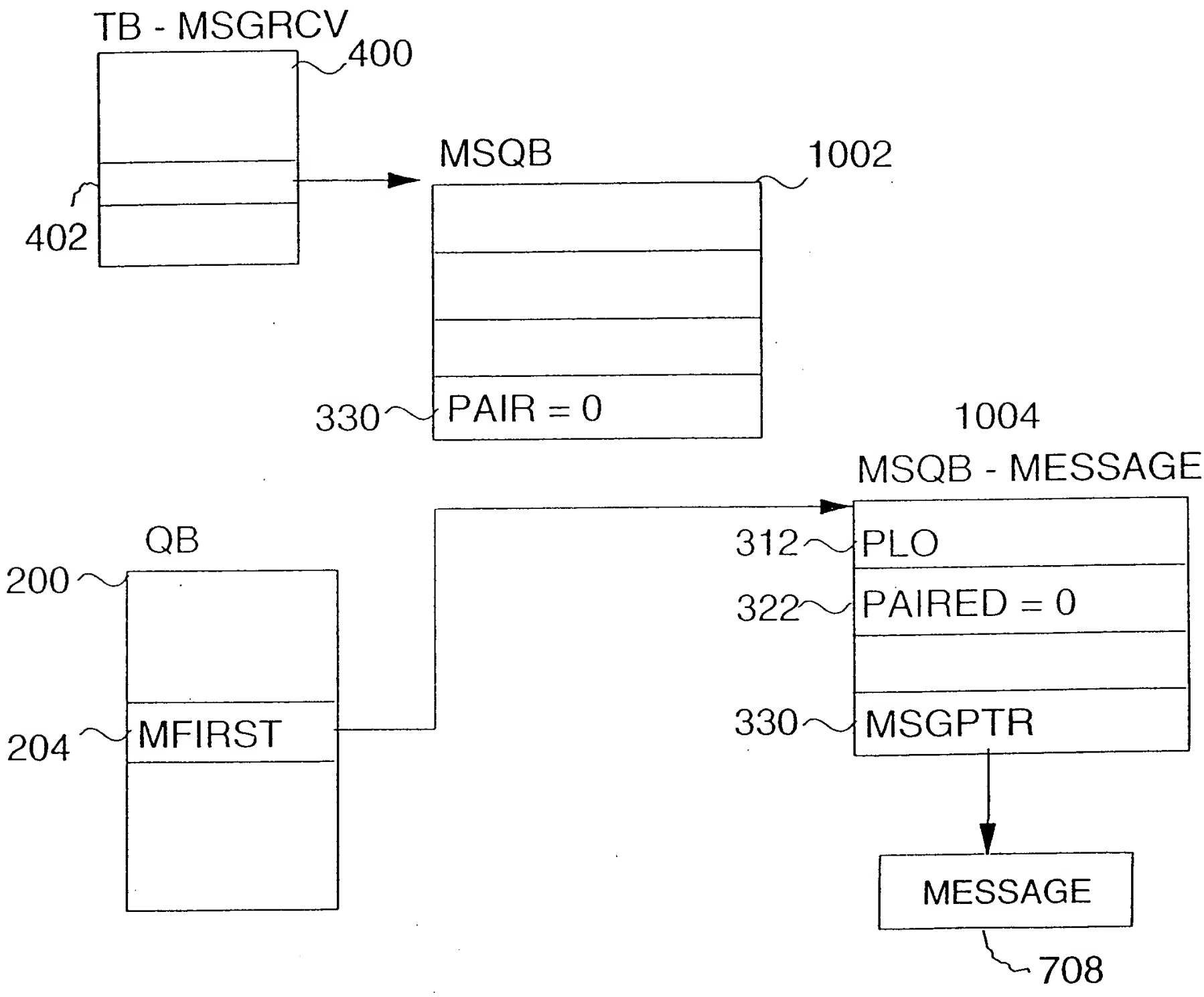


Fig 10A

PLO TO ASSIGN MESSAGE TO CALLER - AFTER

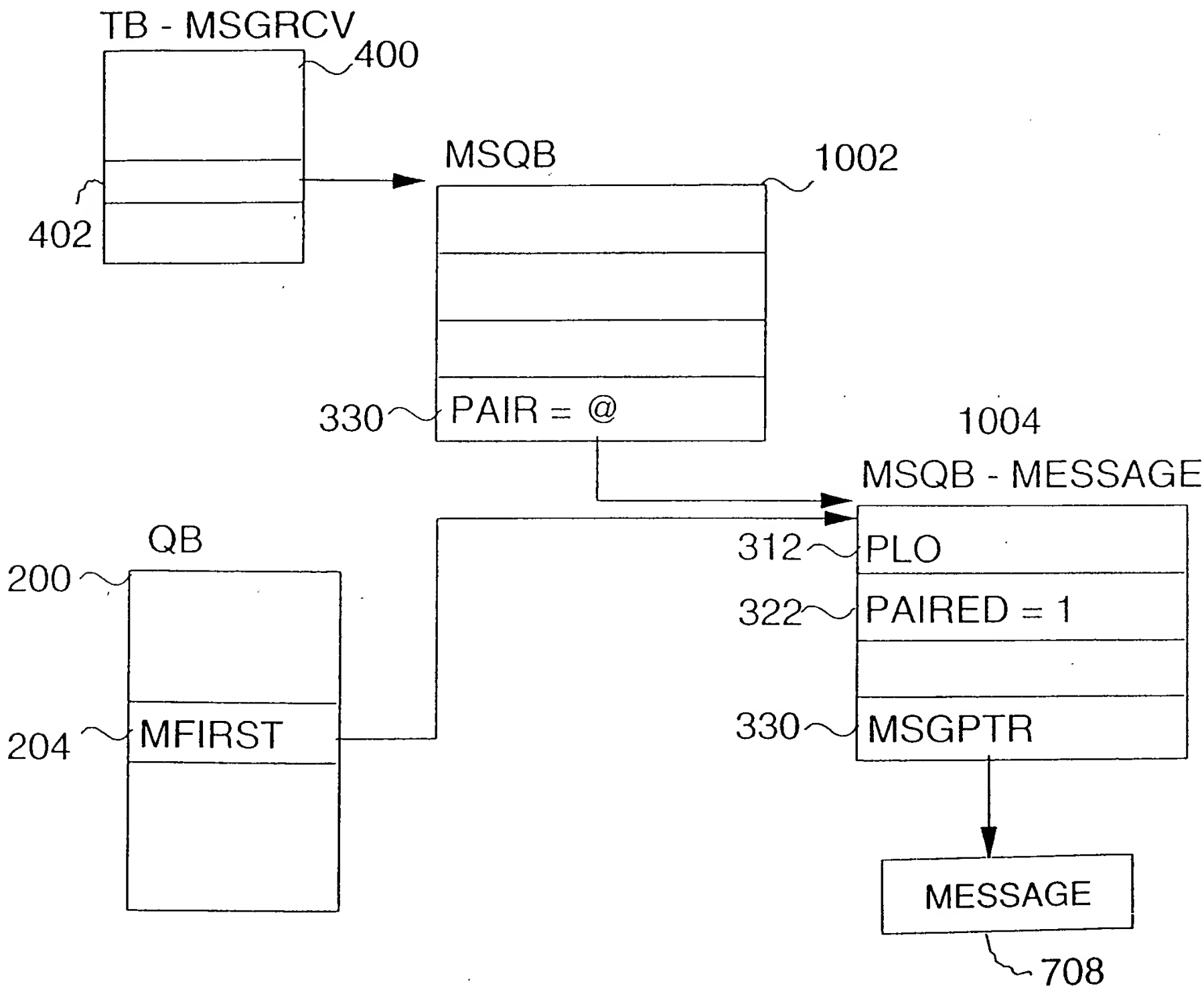


Fig 10B

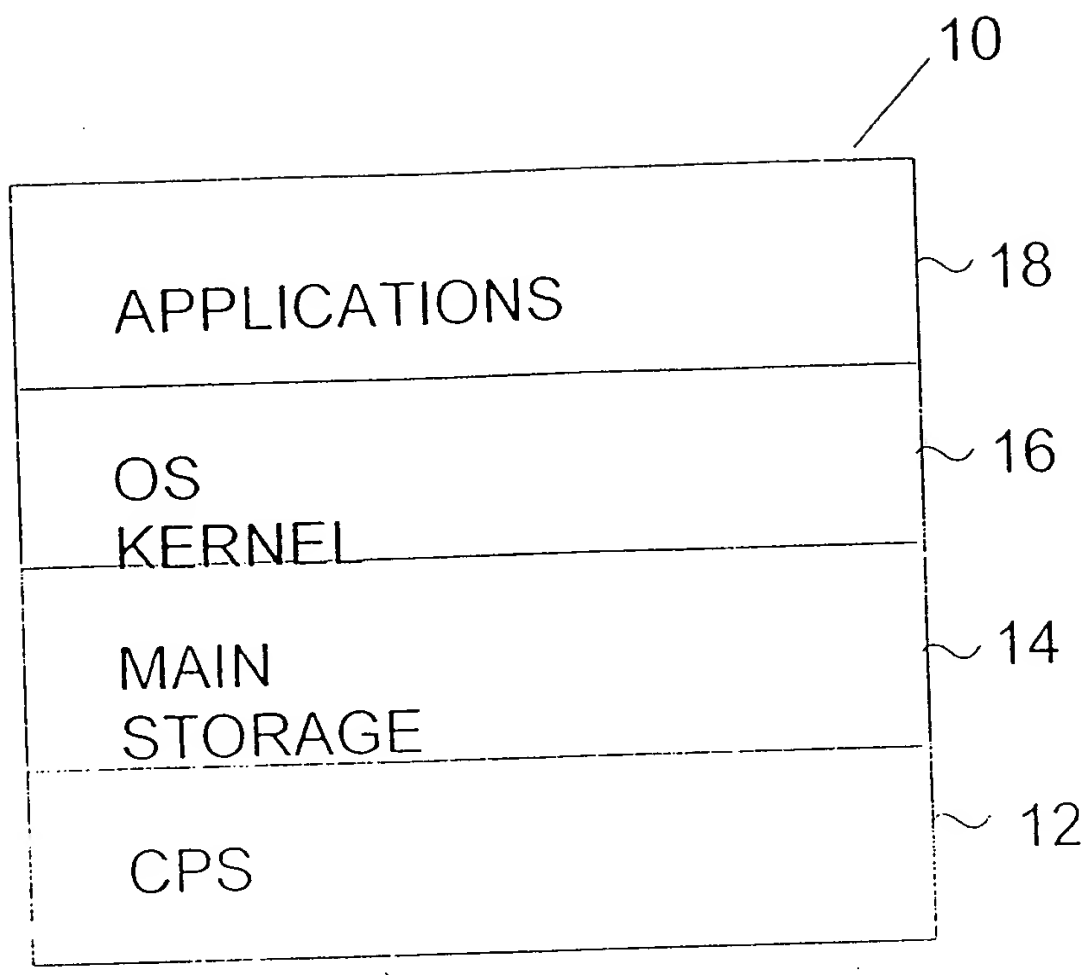


Fig 11

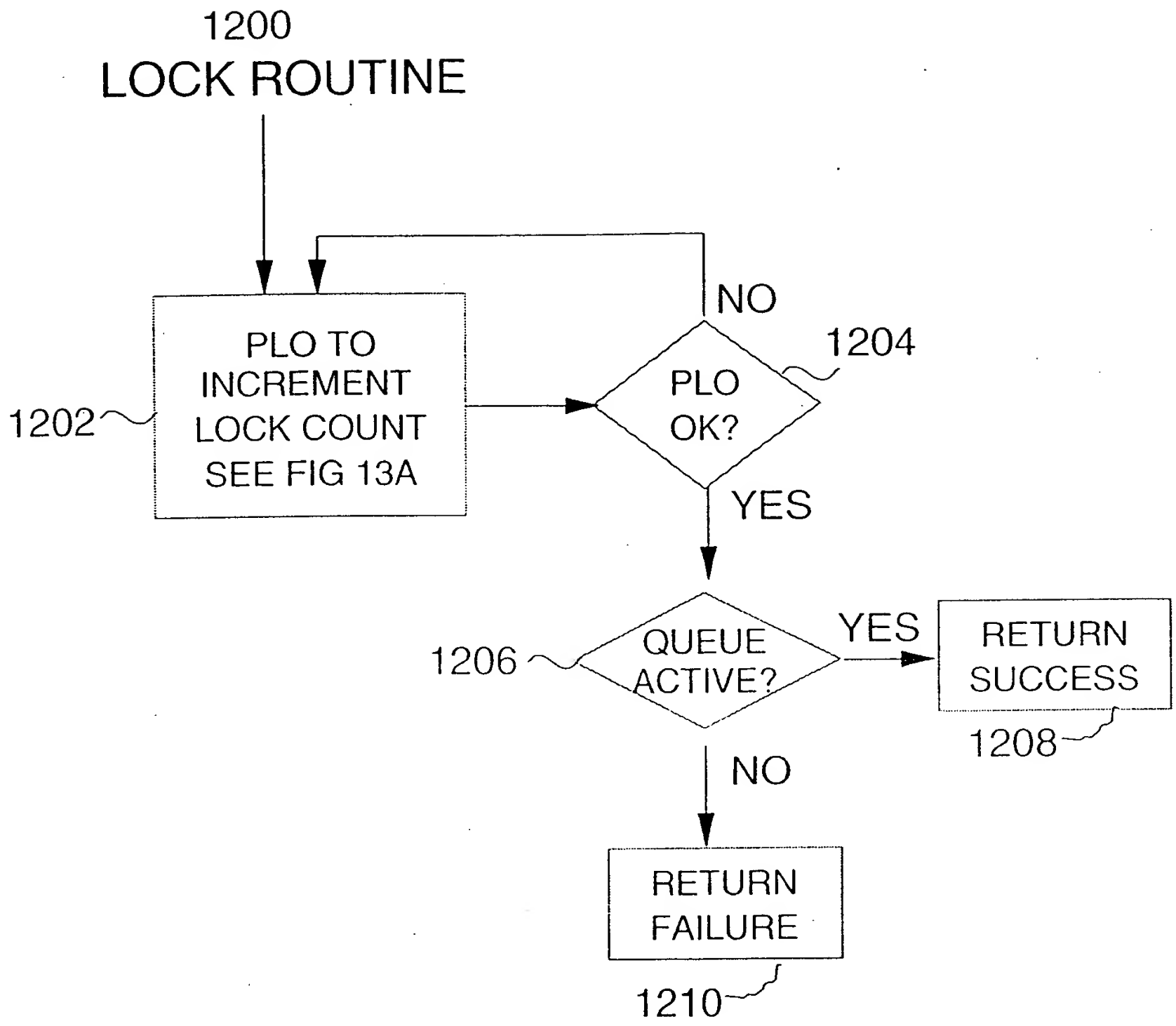
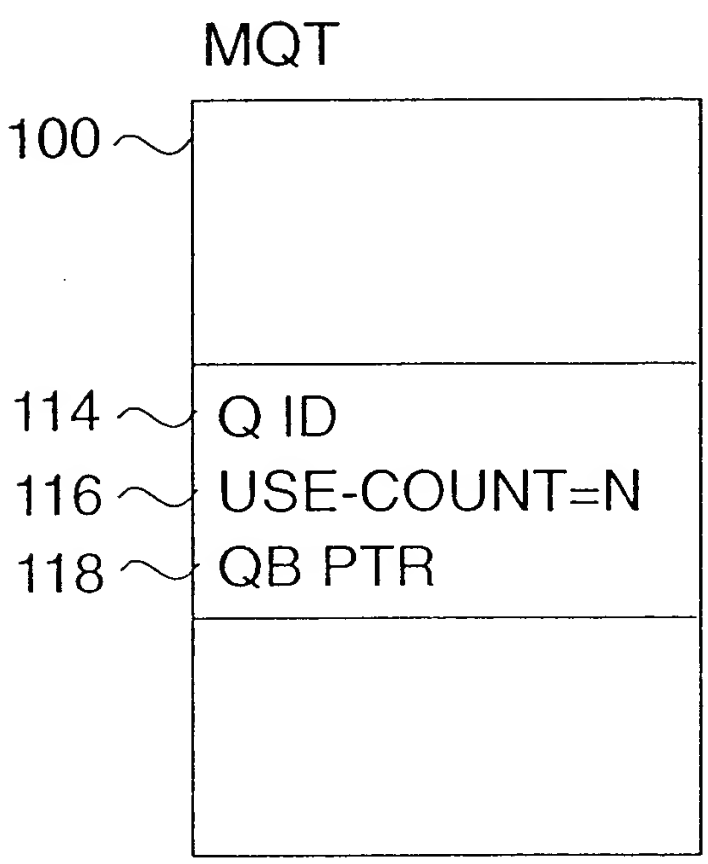

1200
LOCK ROUTINE
PLO TO INCREMENT LOCK COUNT SEE FIG 13A
1202
PLO OK?
1204
NO
YES
QUEUE ACTIVE?
1206
YES
RETURN SUCCESS
1208
NO
RETURN FAILURE
1210

Fig 12

LOCK PLO STATE - BEFORE



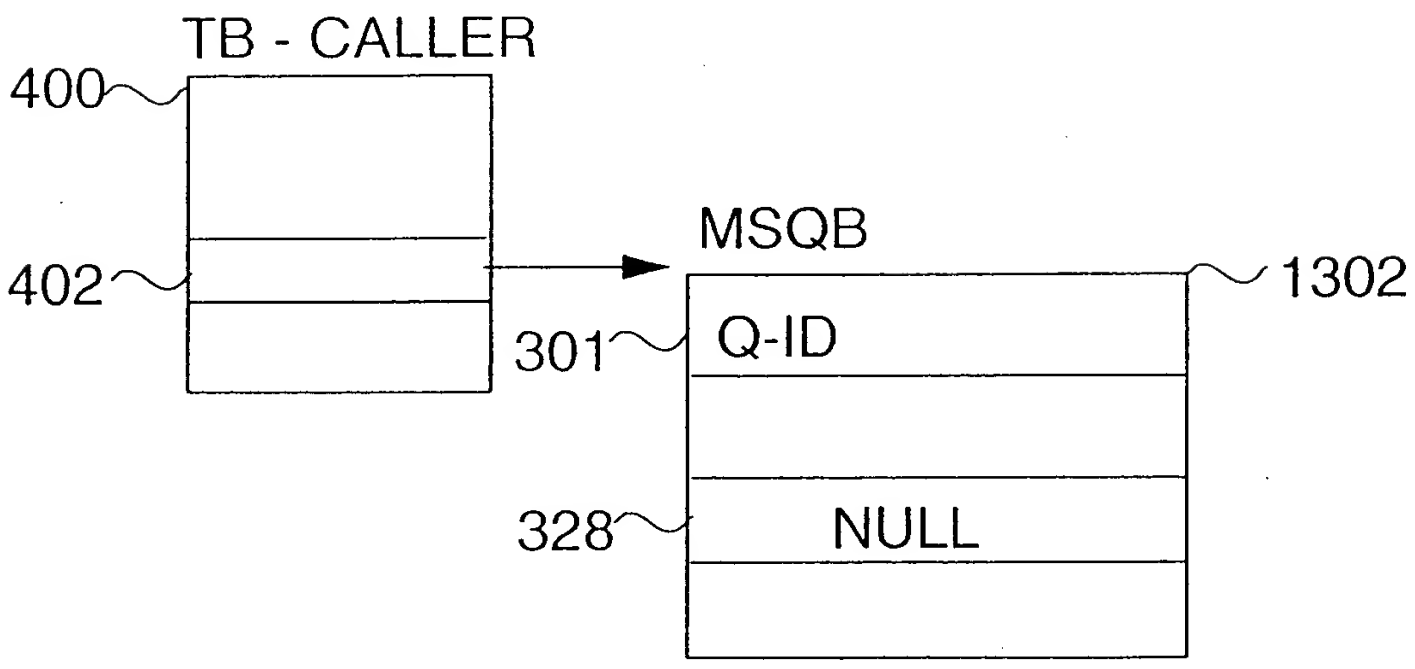


Fig 13A

LOCK PLO STATE - AFTER

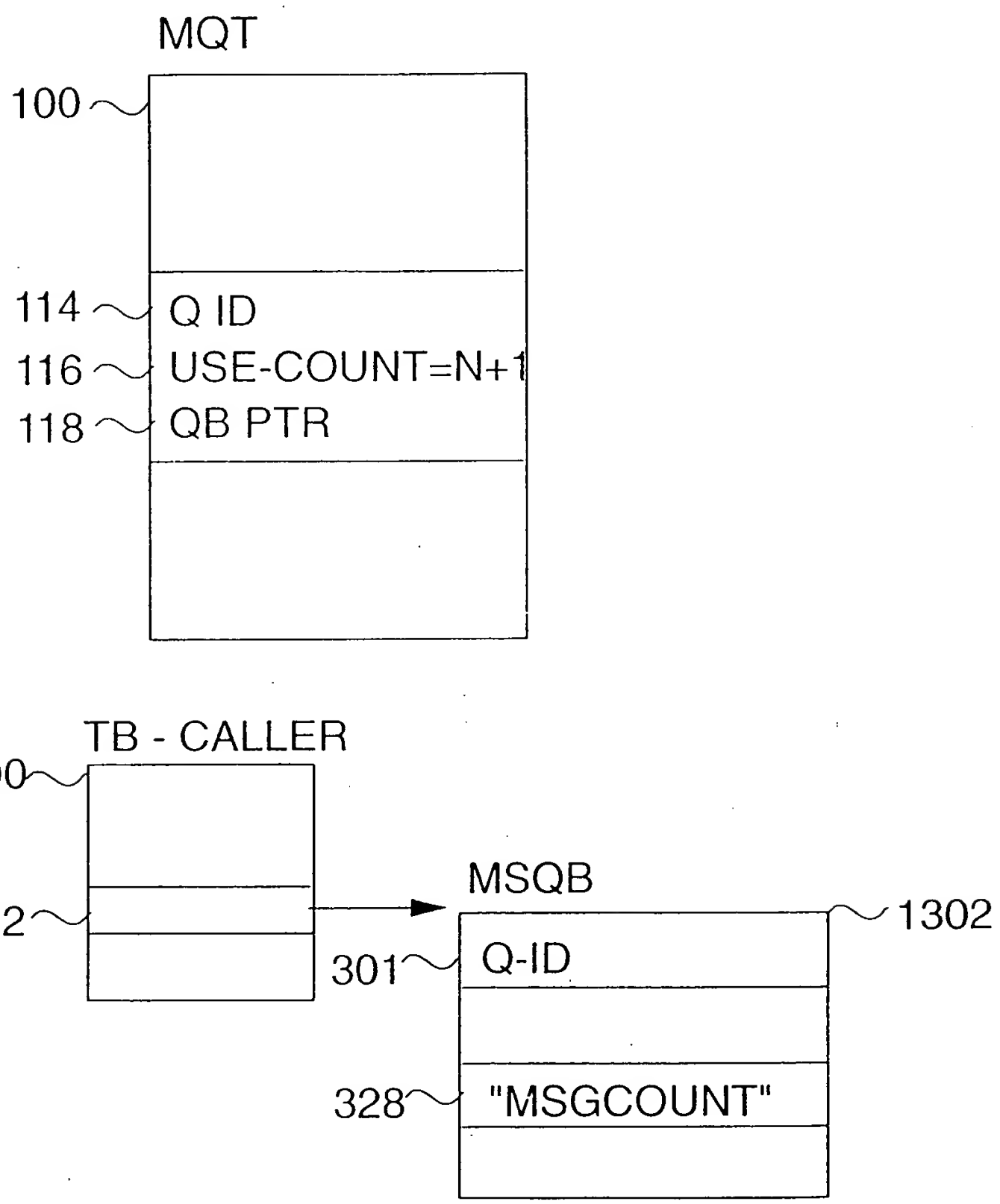


Fig 13B

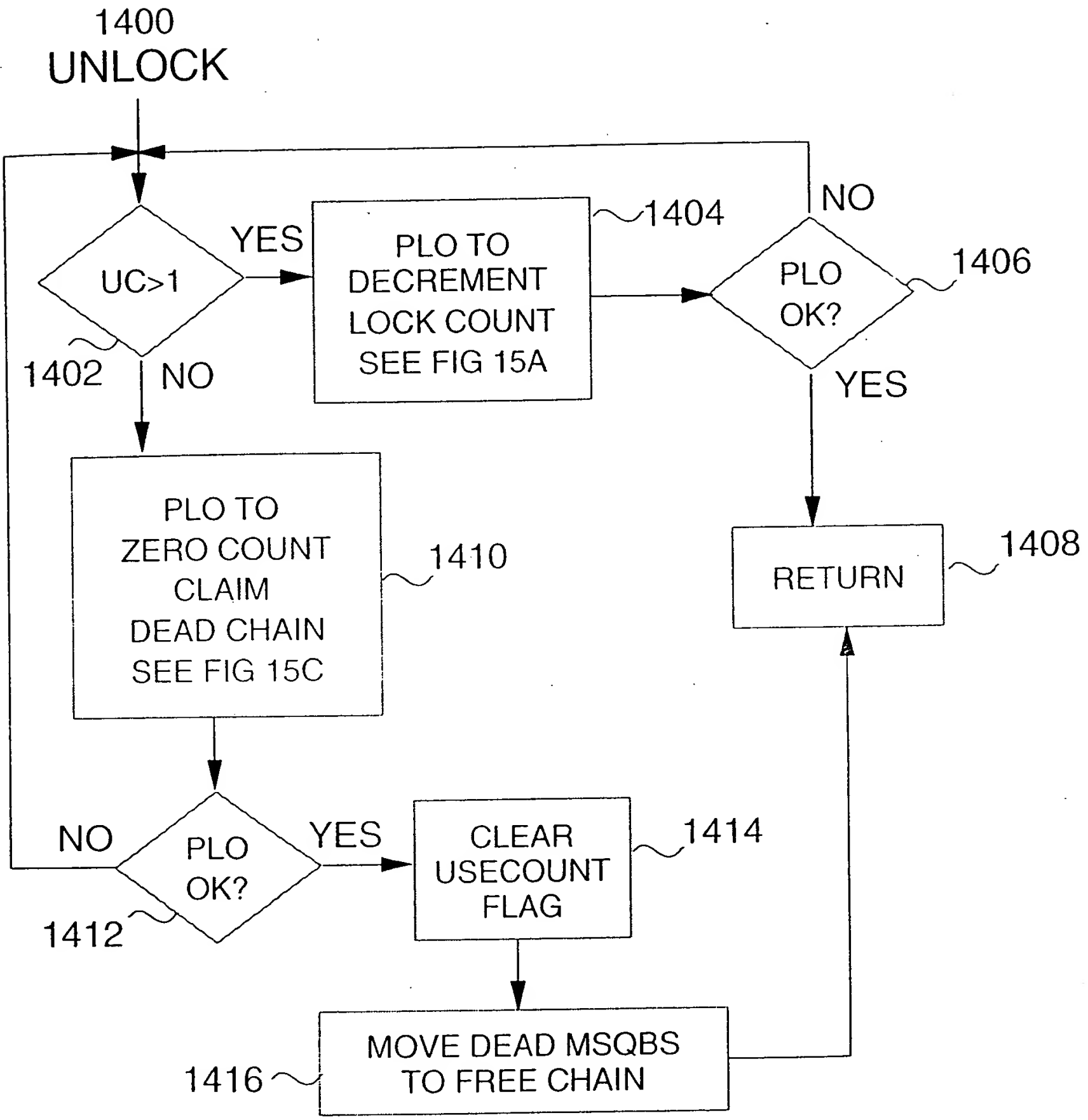
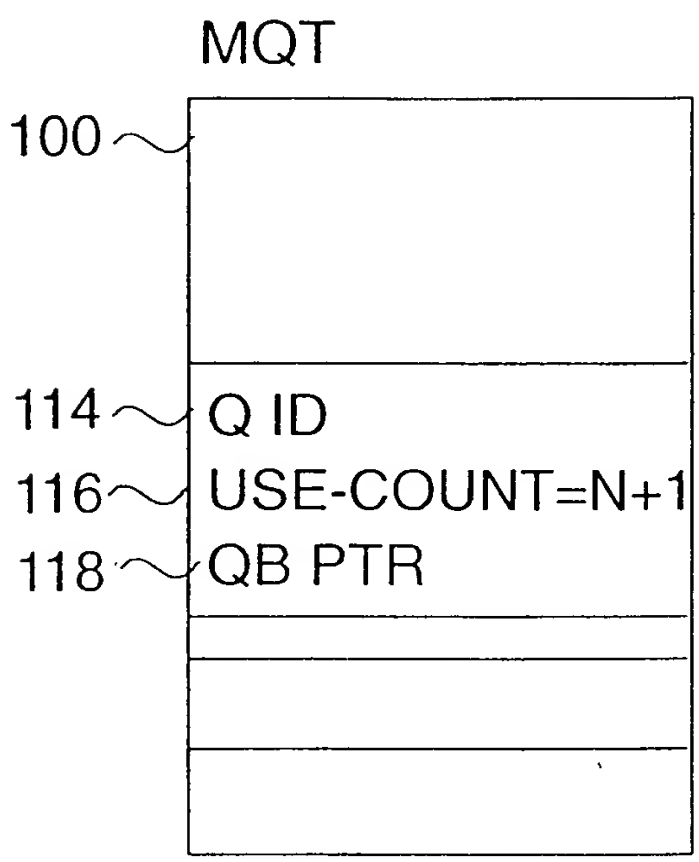

1400
UNLOCK
UC>1
YES
NO
1402
PLO TO
DECREMENT
LOCK COUNT
SEE FIG 15A
1404
PLO
OK?
1406
NO
YES
PLO TO
ZERO COUNT
CLAIM
DEAD CHAIN
SEE FIG 15C
1410
RETURN
1408
PLO
OK?
NO
YES
1412
CLEAR
USECOUNT
FLAG
1414
MOVE DEAD MSQBS
TO FREE CHAIN
1416

Fig 14

UNLOCK PLO COUNT > 1 - BEFORE



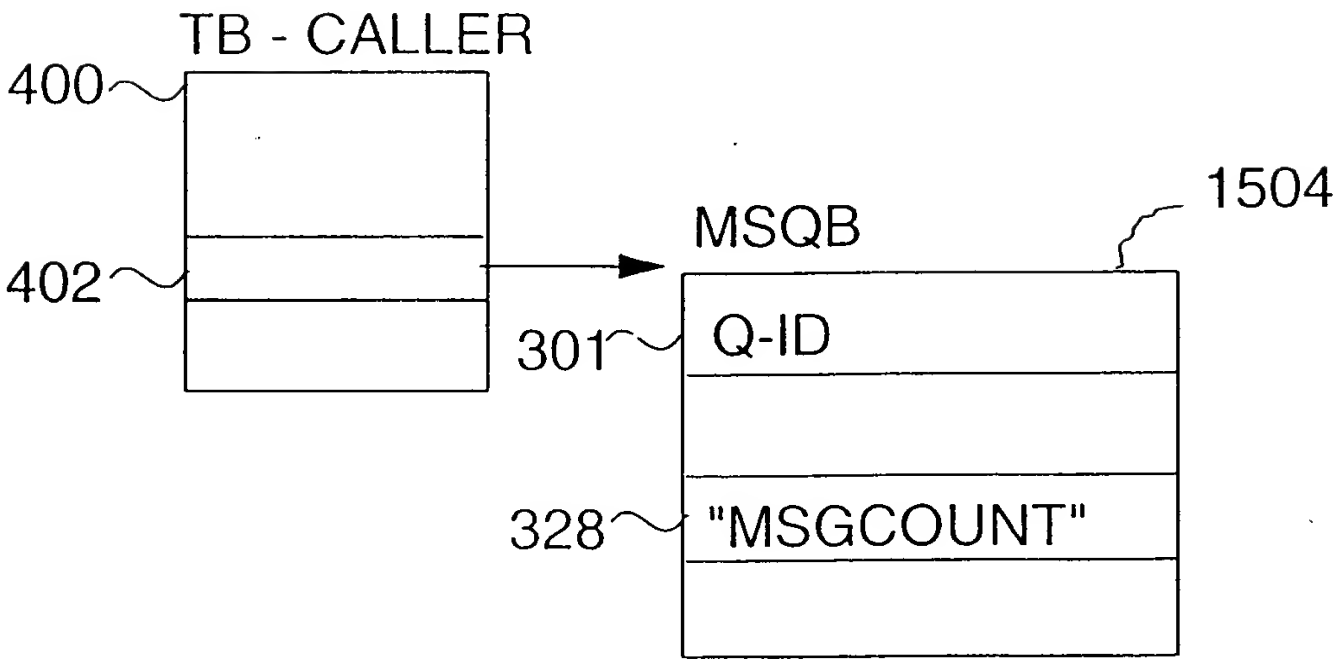
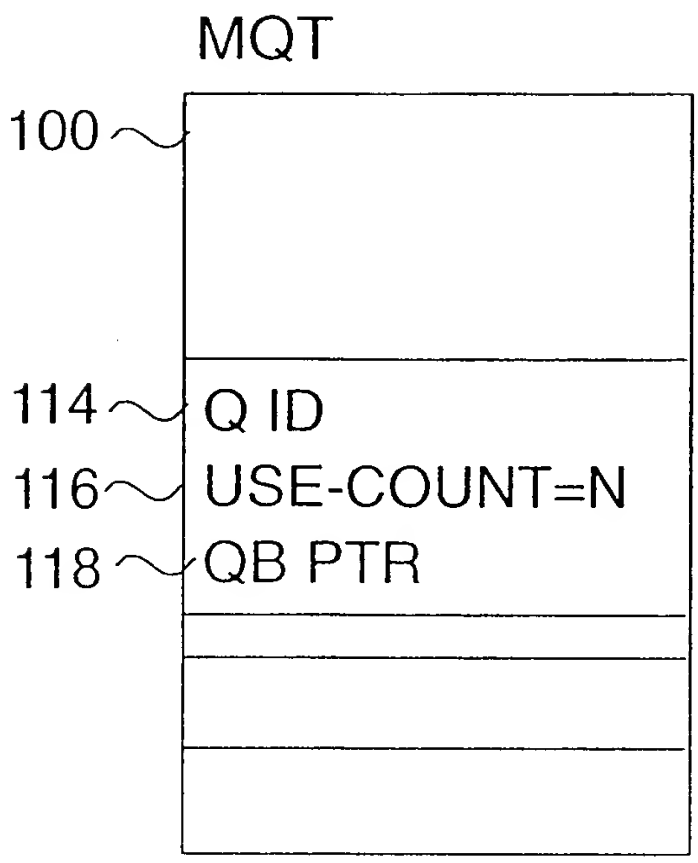


Fig 15A

UNLOCK PLO CNT > 1 - AFTER



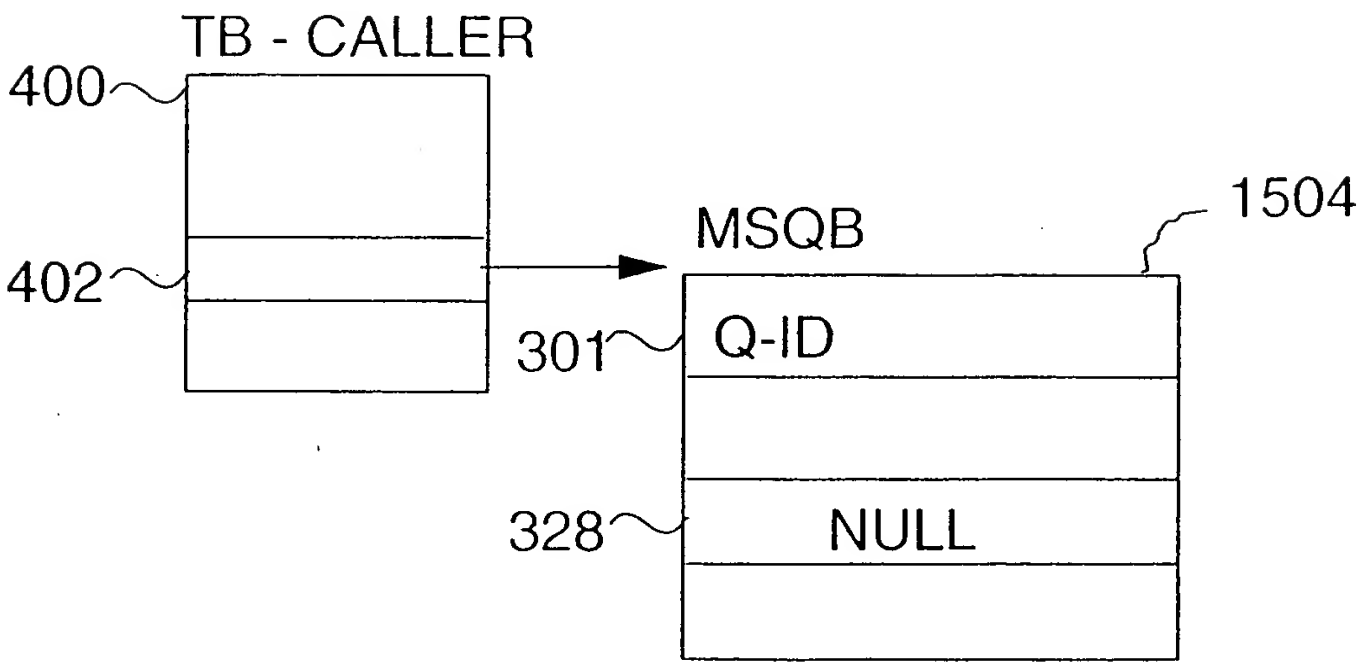


Fig 15B

UNLOCK PLO COUNT = 1 - BEFORE

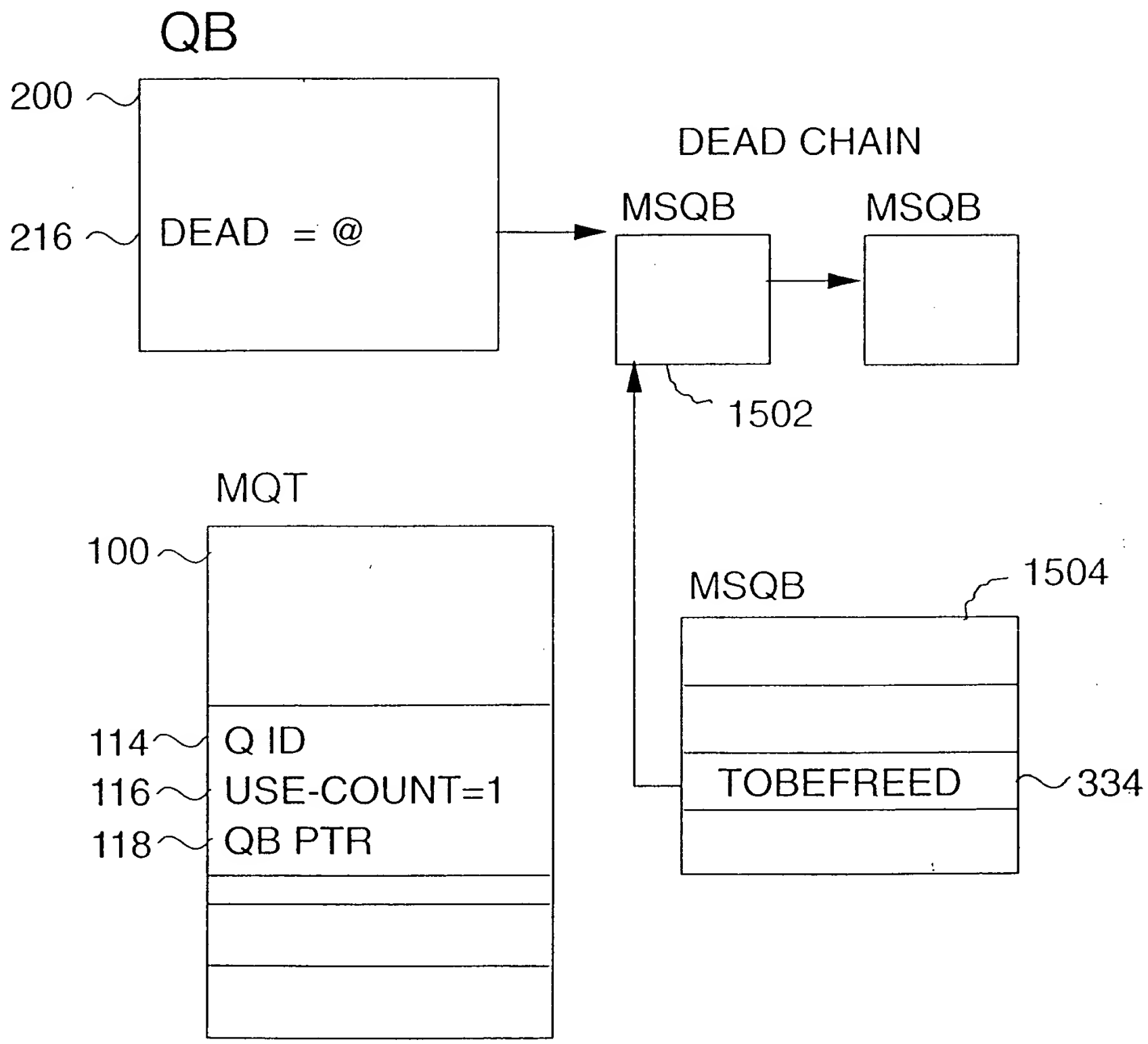


Fig 15C

UNLOCK PLO COUNT = 1 - AFTER

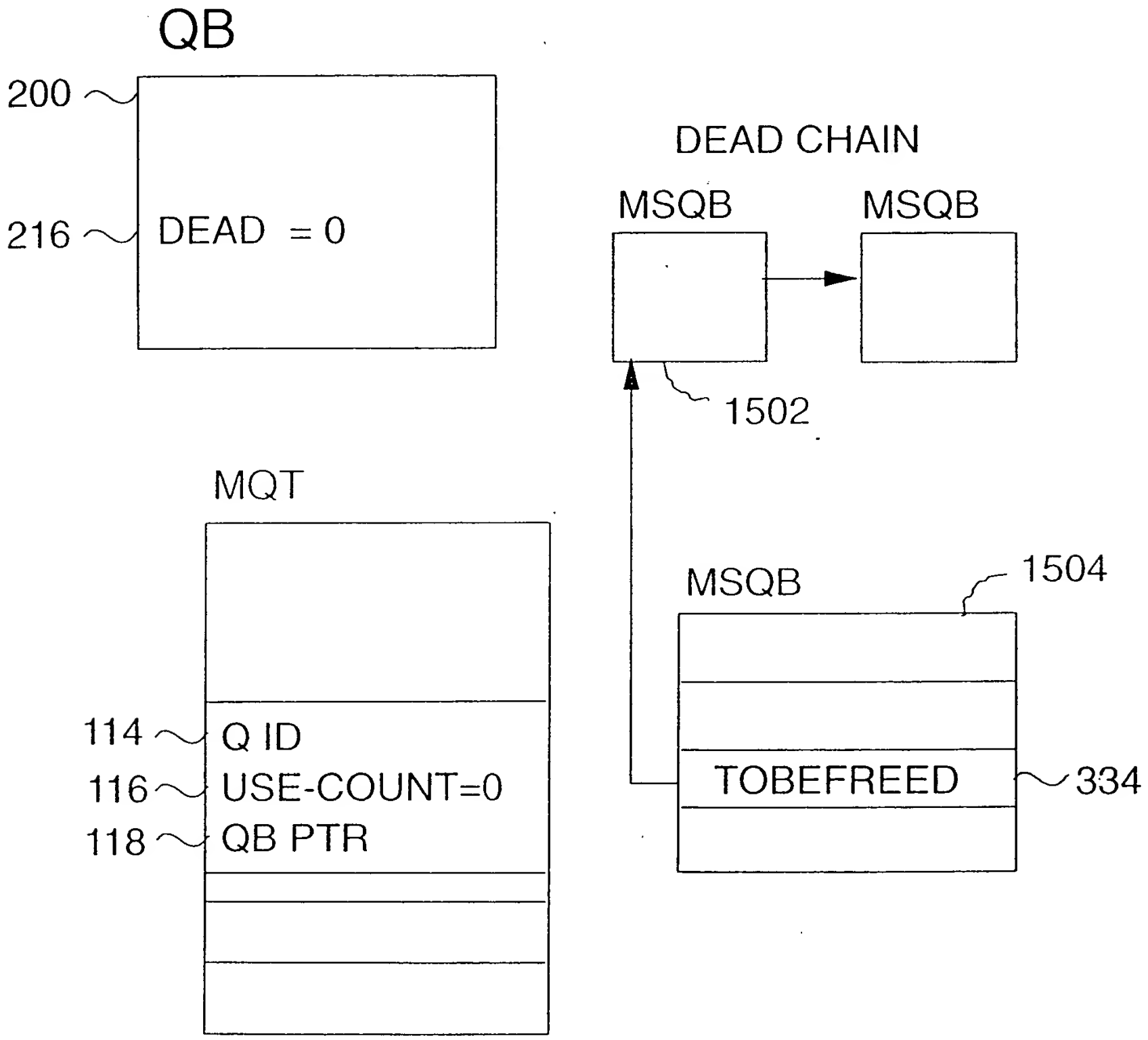


Fig 15D

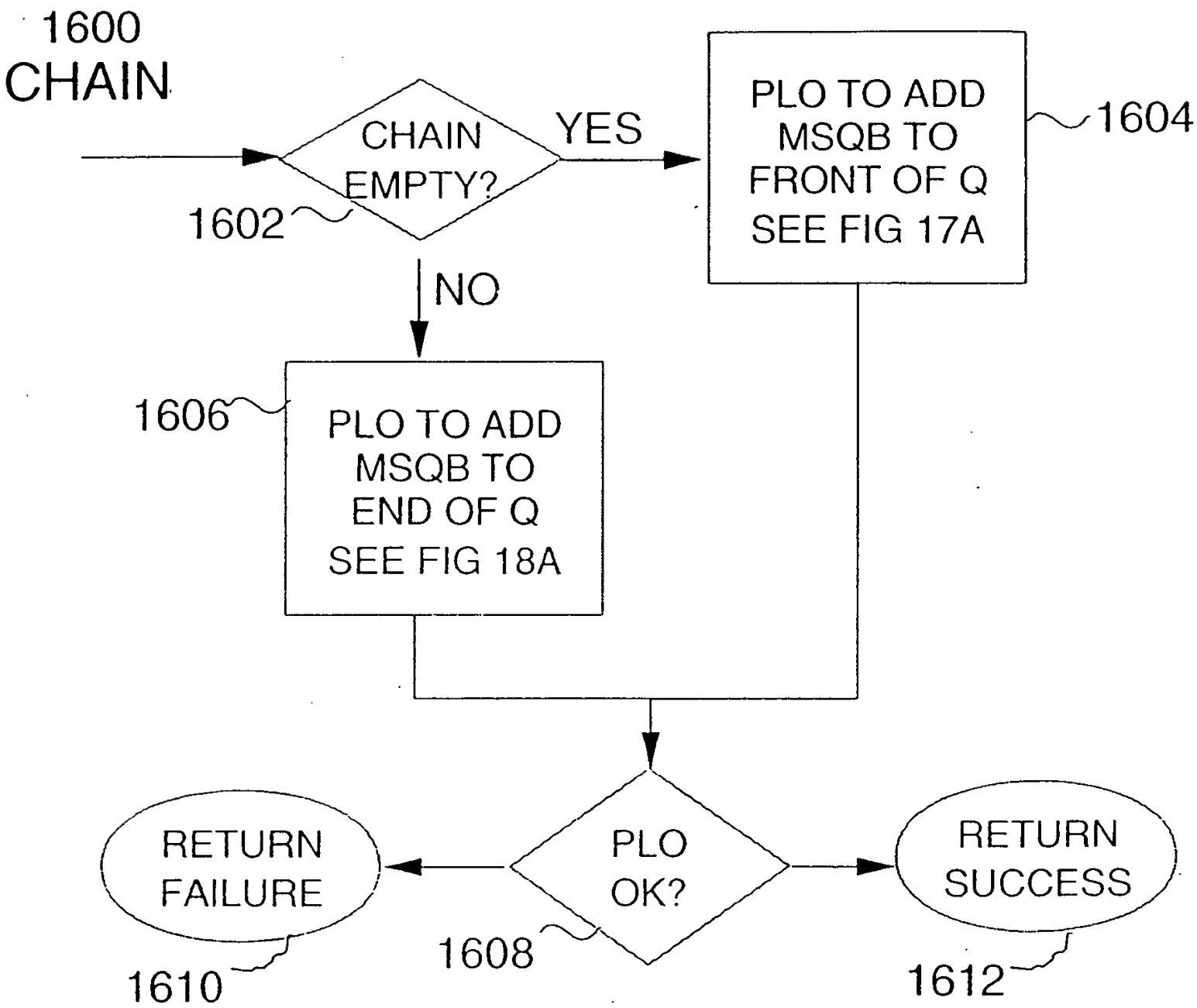

1600
CHAIN
CHAIN EMPTY?
1602
YES
NO
PLO TO ADD MSQB TO FRONT OF Q SEE FIG 17A
1604
PLO TO ADD MSQB TO END OF Q SEE FIG 18A
1606
PLO OK?
1608
RETURN FAILURE
1610
RETURN SUCCESS
1612

Fig 16

PLO CHAIN TO FRONT - BEFORE

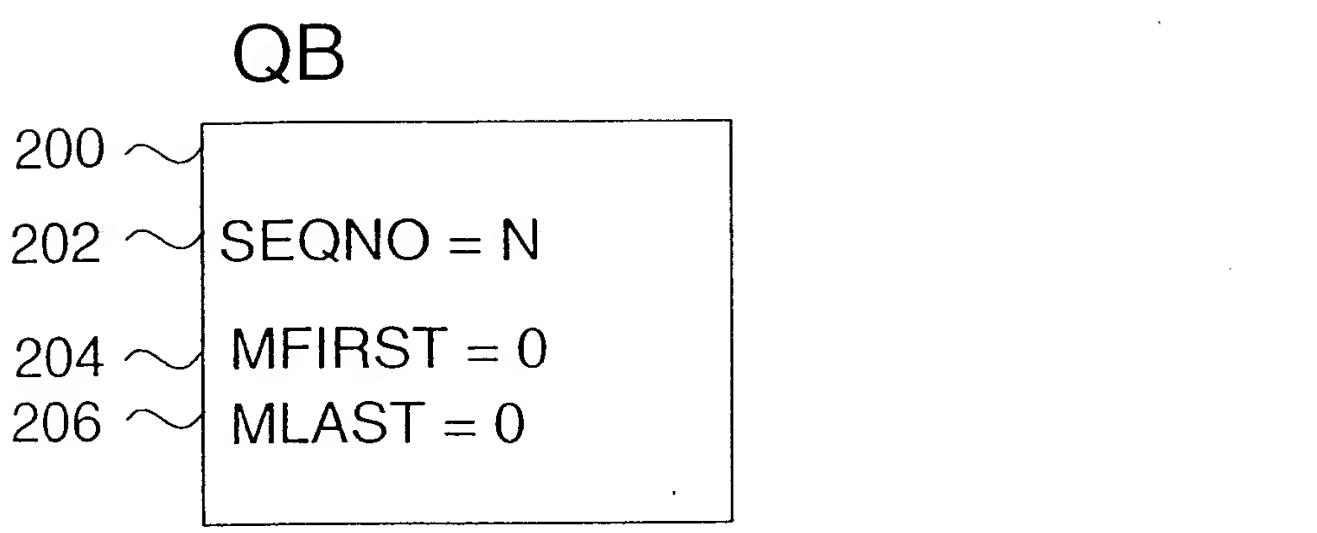


Fig 17A

PLO CHAIN TO FRONT - AFTER

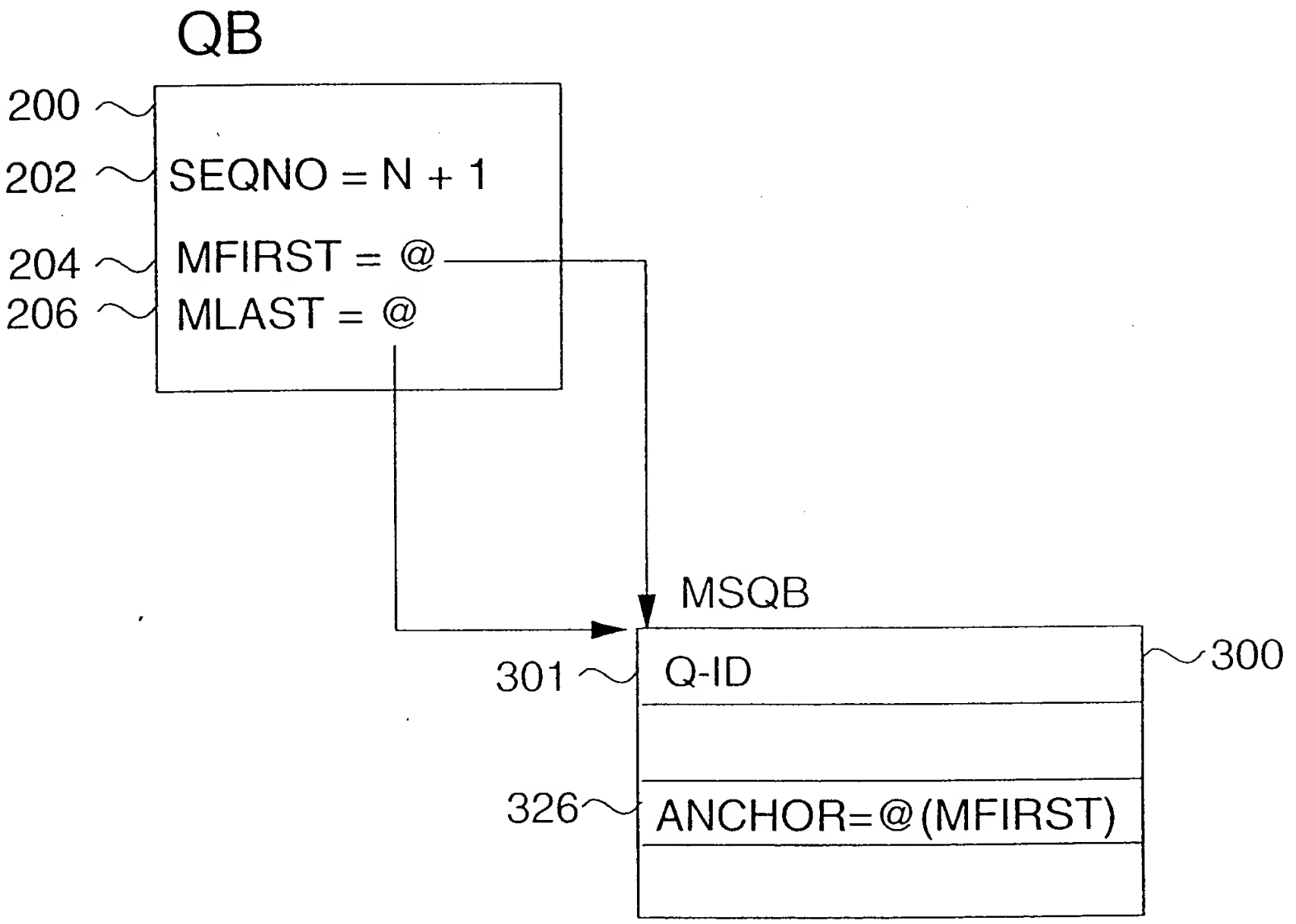
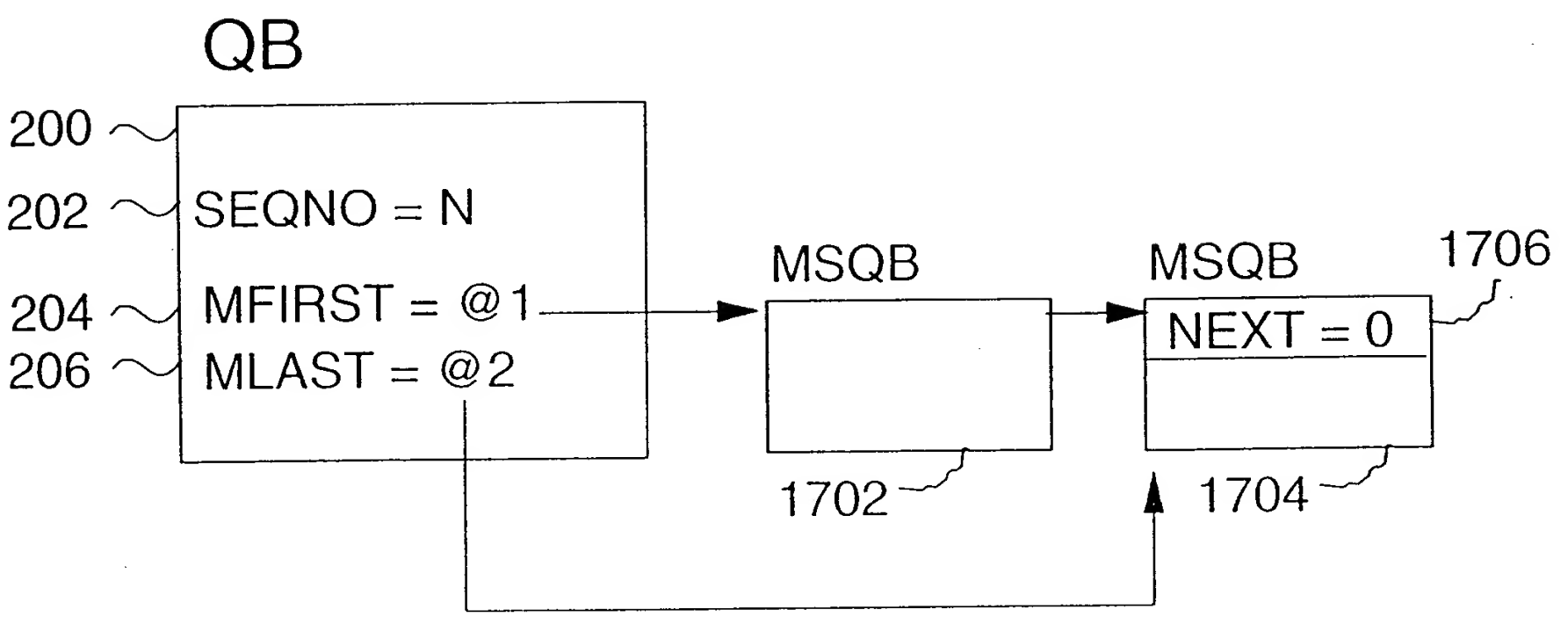


Fig 17B

PLO CHAIN TO END - BEFORE



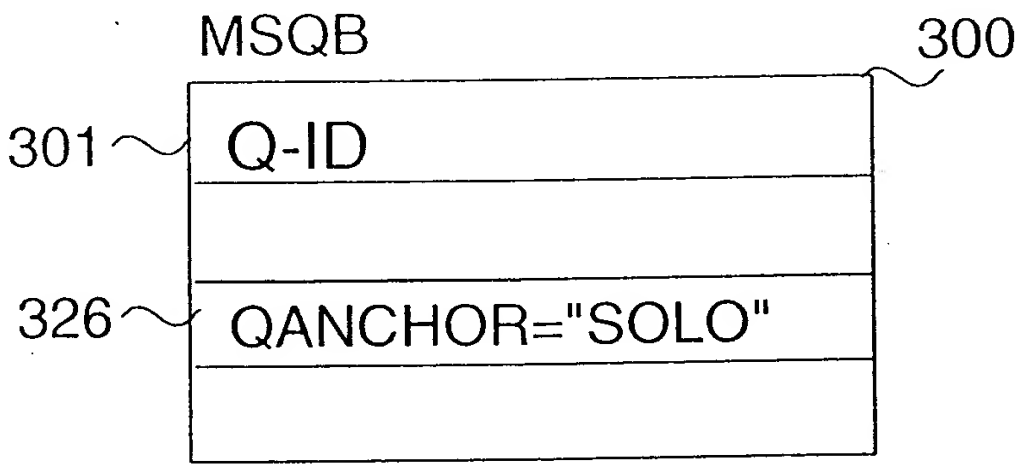


Fig 17C

PLO CHAIN TO END - AFTER

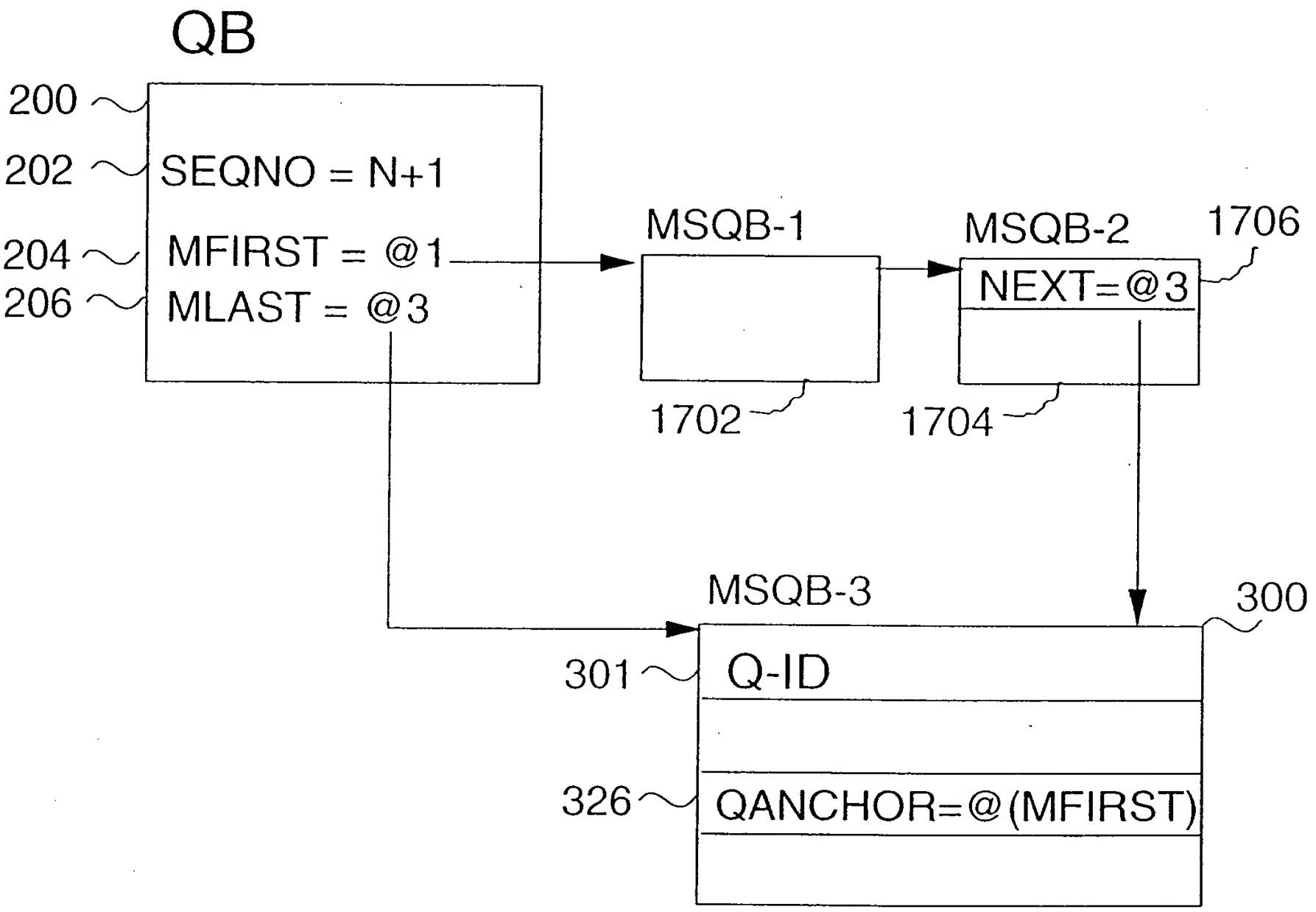


Fig 17D

PLO UNCHAIN ONLY ELEMENT - BEFORE

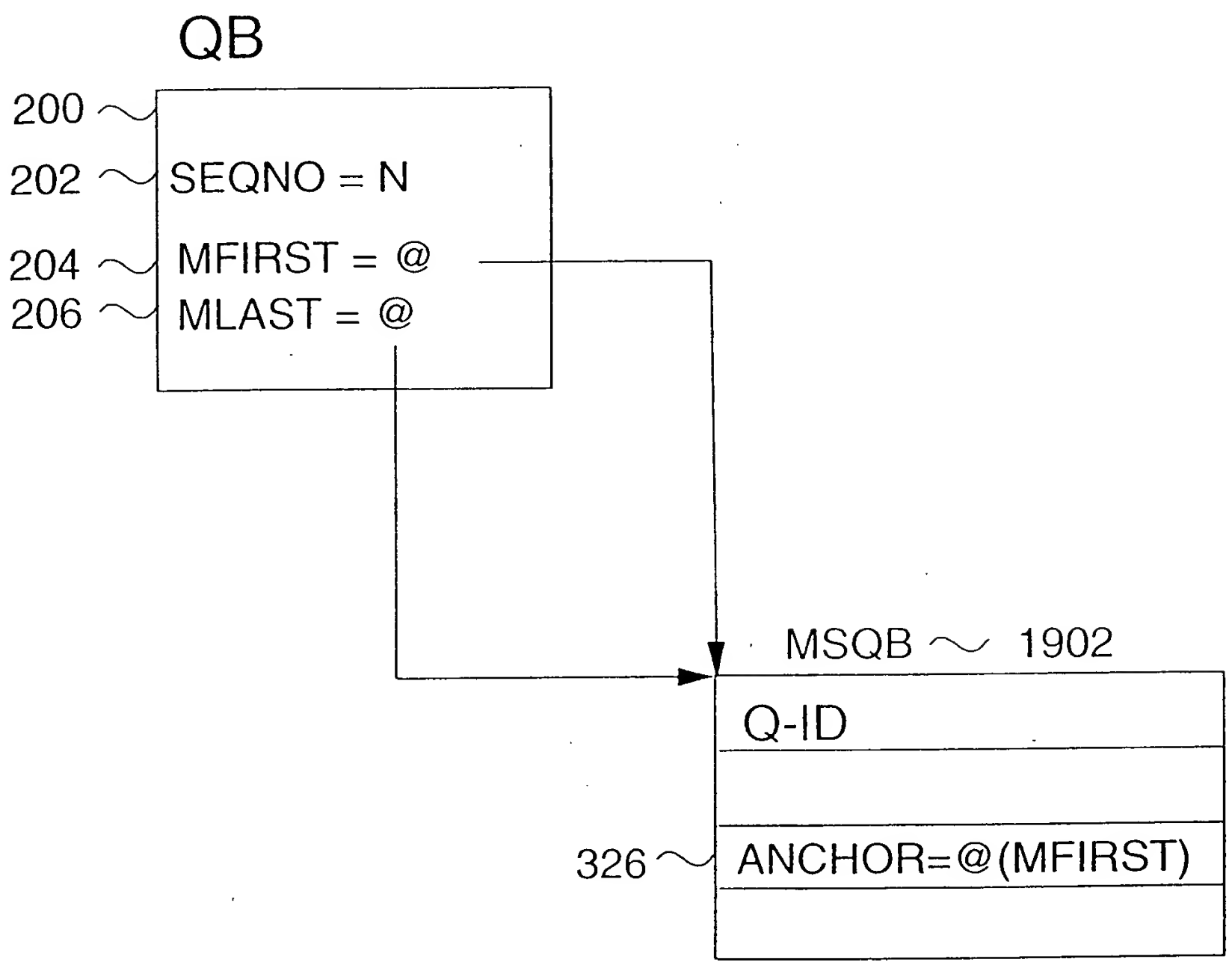


Fig 19A

PLO UNCHAIN ONLY ELEMENT - AFTER

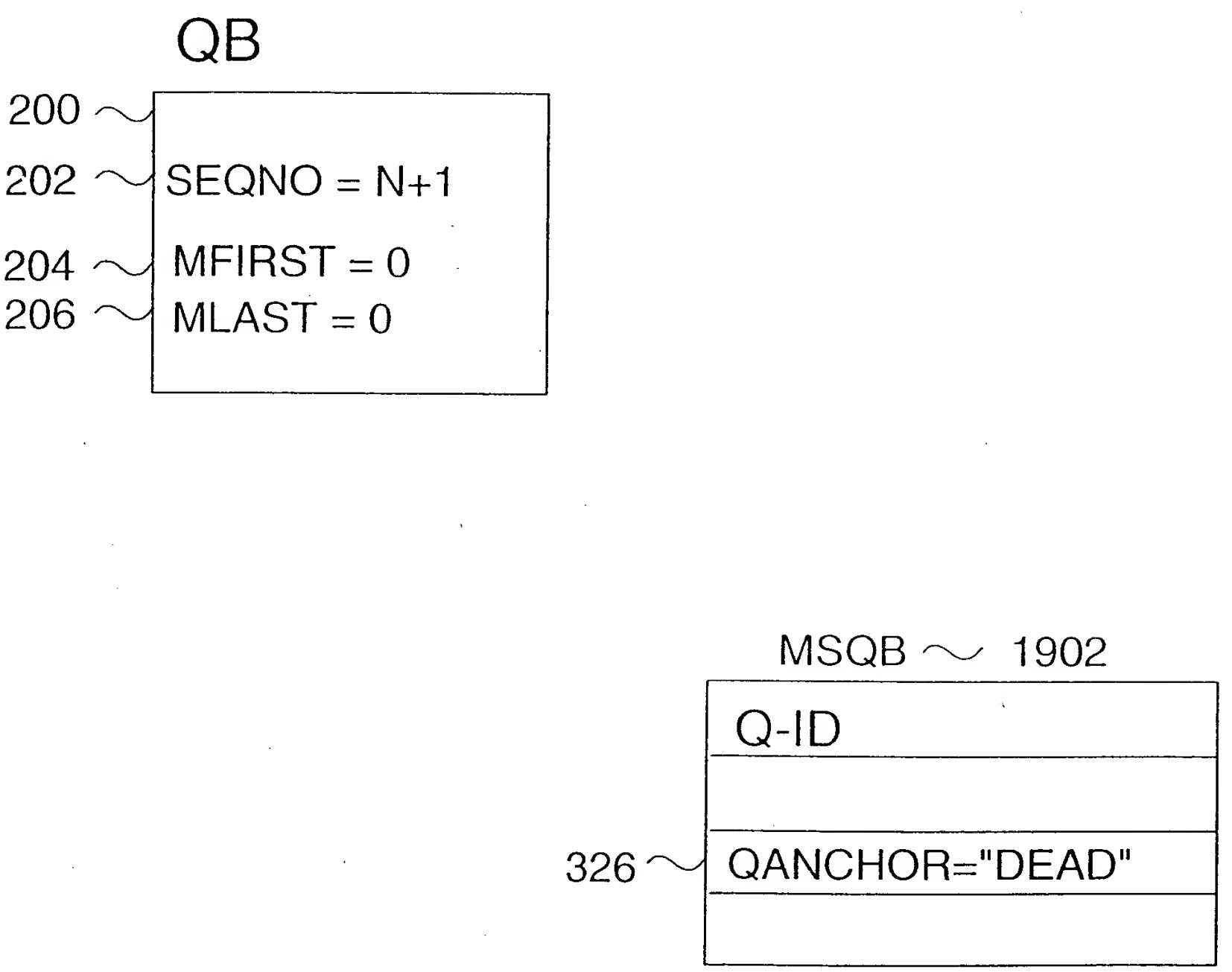


Fig 19B

PLO UNCHAIN FIRST ELEMENT - BEFORE

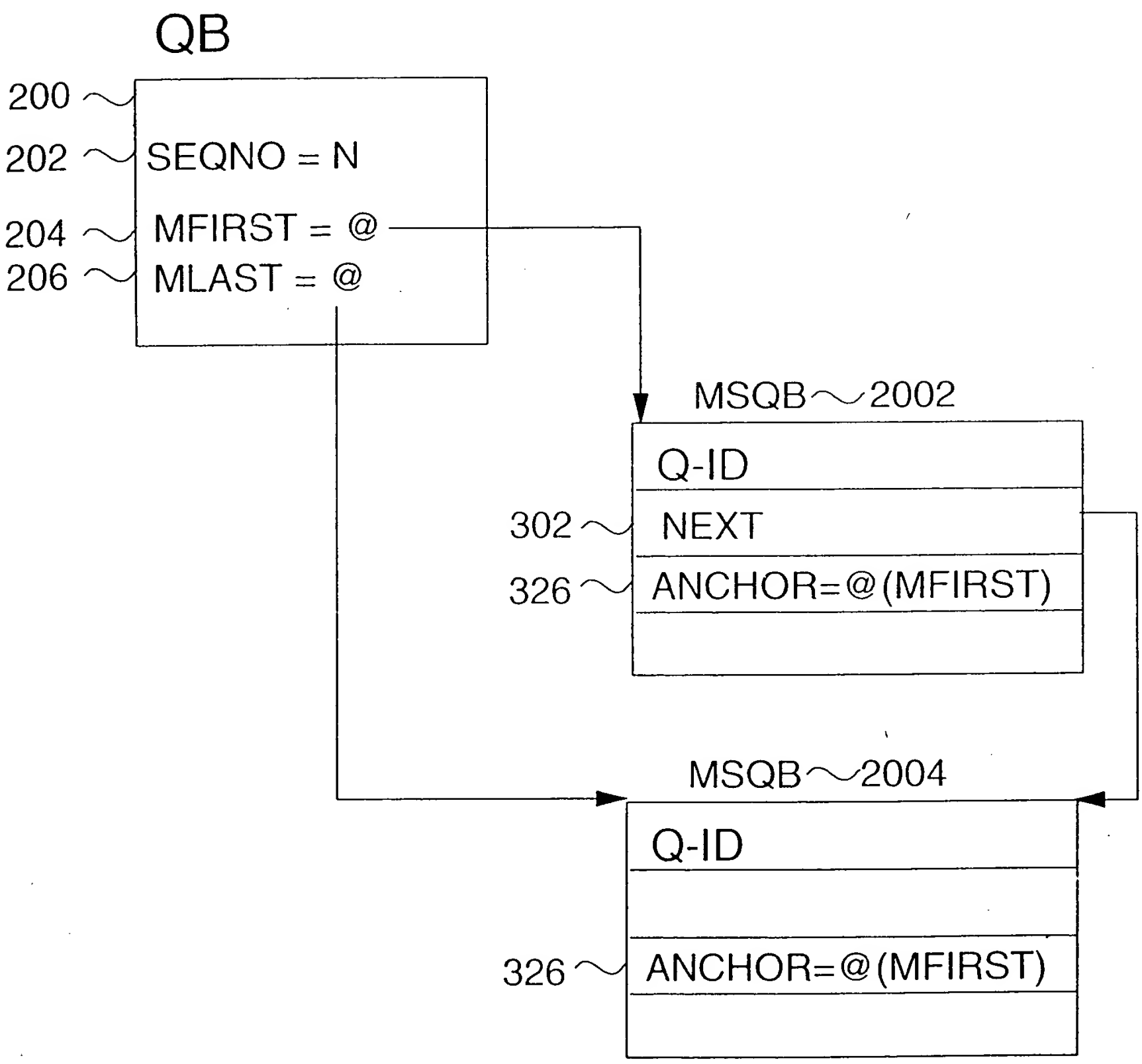


Fig 20A

PLO UNCHAIN FIRST ELEMENT - AFTER

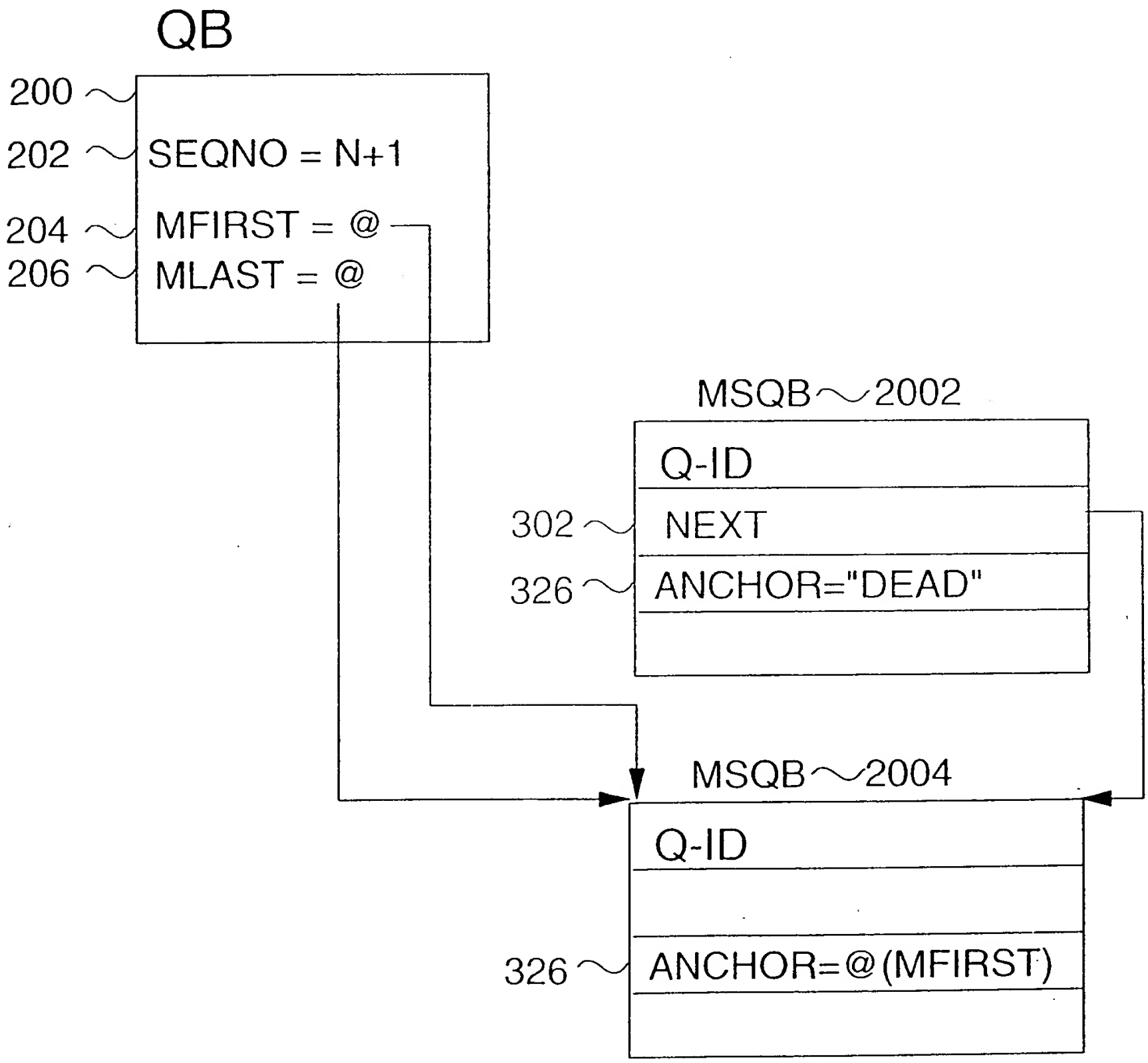


Fig 20B

PLO UNCHAIN LAST ELEMENT - BEFORE

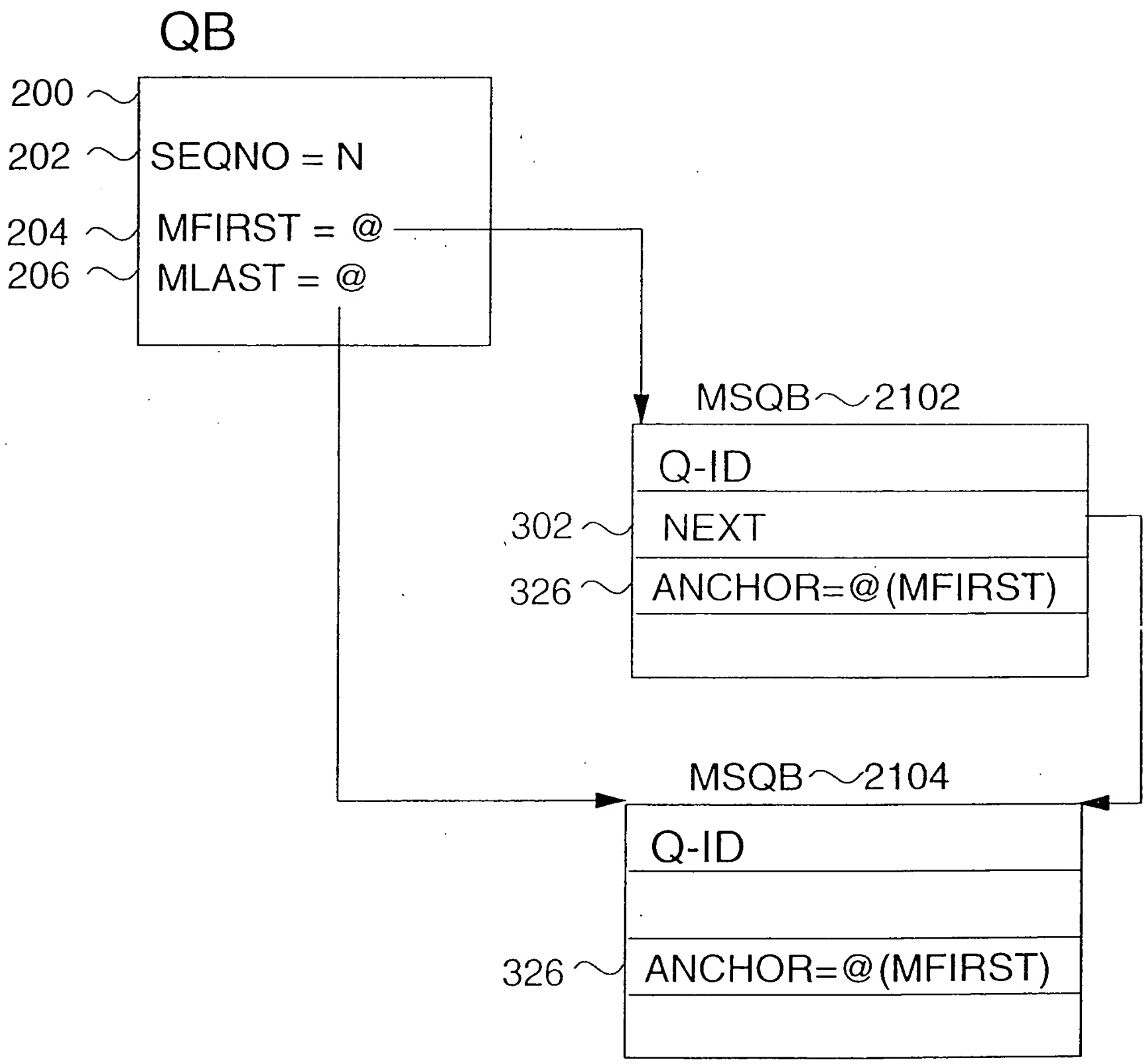


Fig 21A

PLO UNCHAIN LAST ELEMENT - AFTER

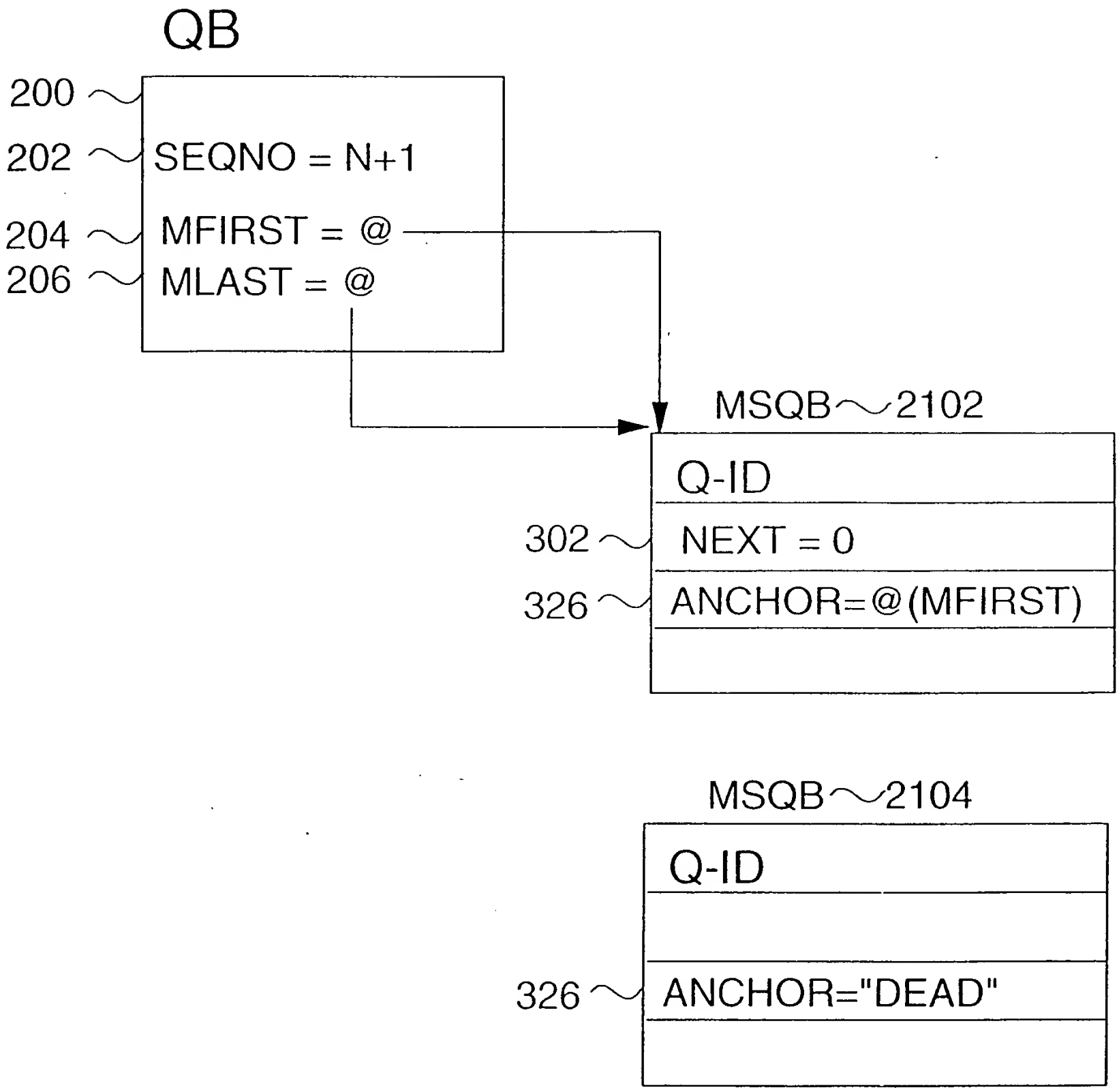


Fig 21B

PLO UNCHAIN MIDDLE ELEMENT - BEFORE

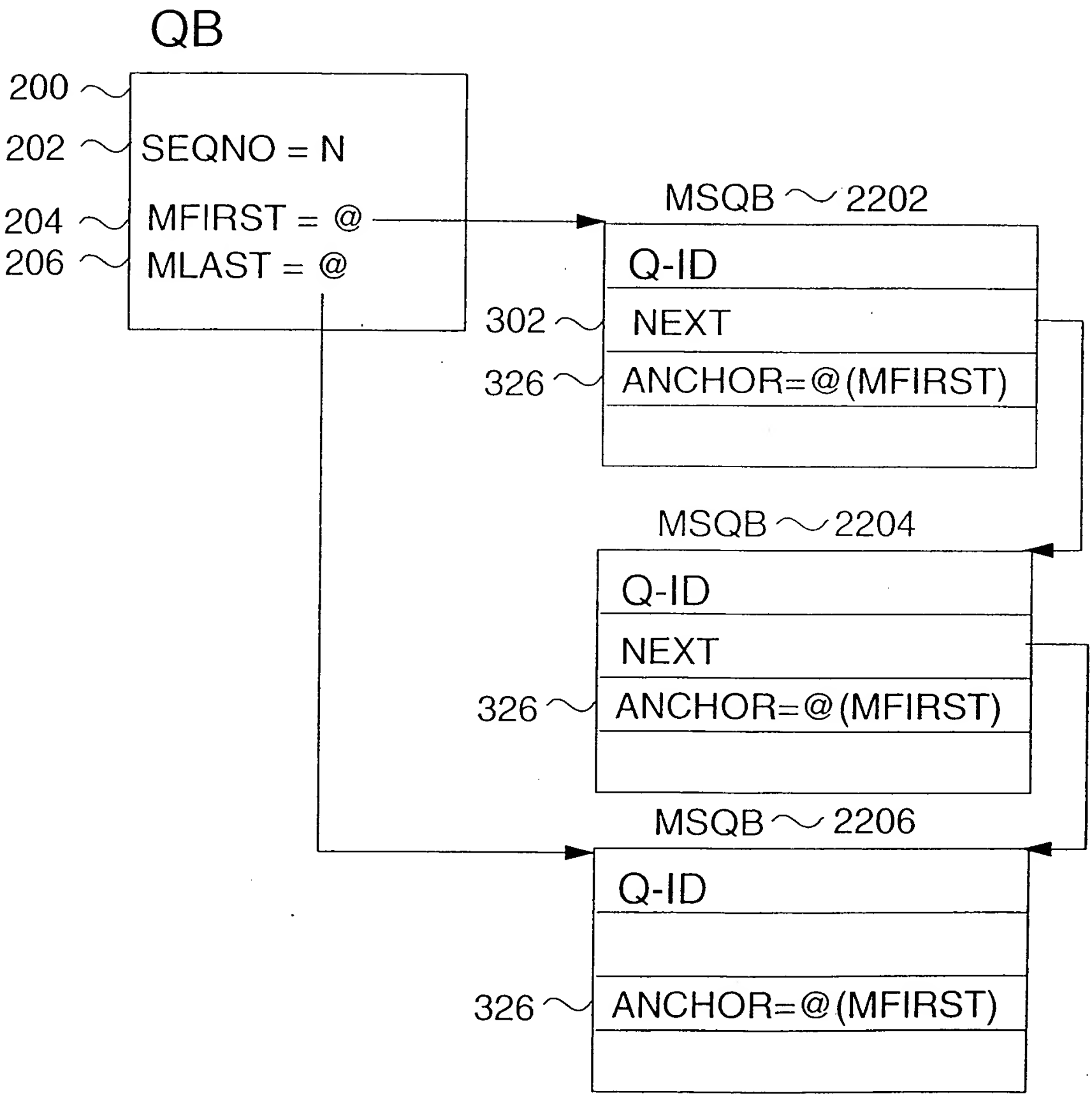


Fig 22A

PLO UNCHAIN MIDDLE ELEMENT - AFTER

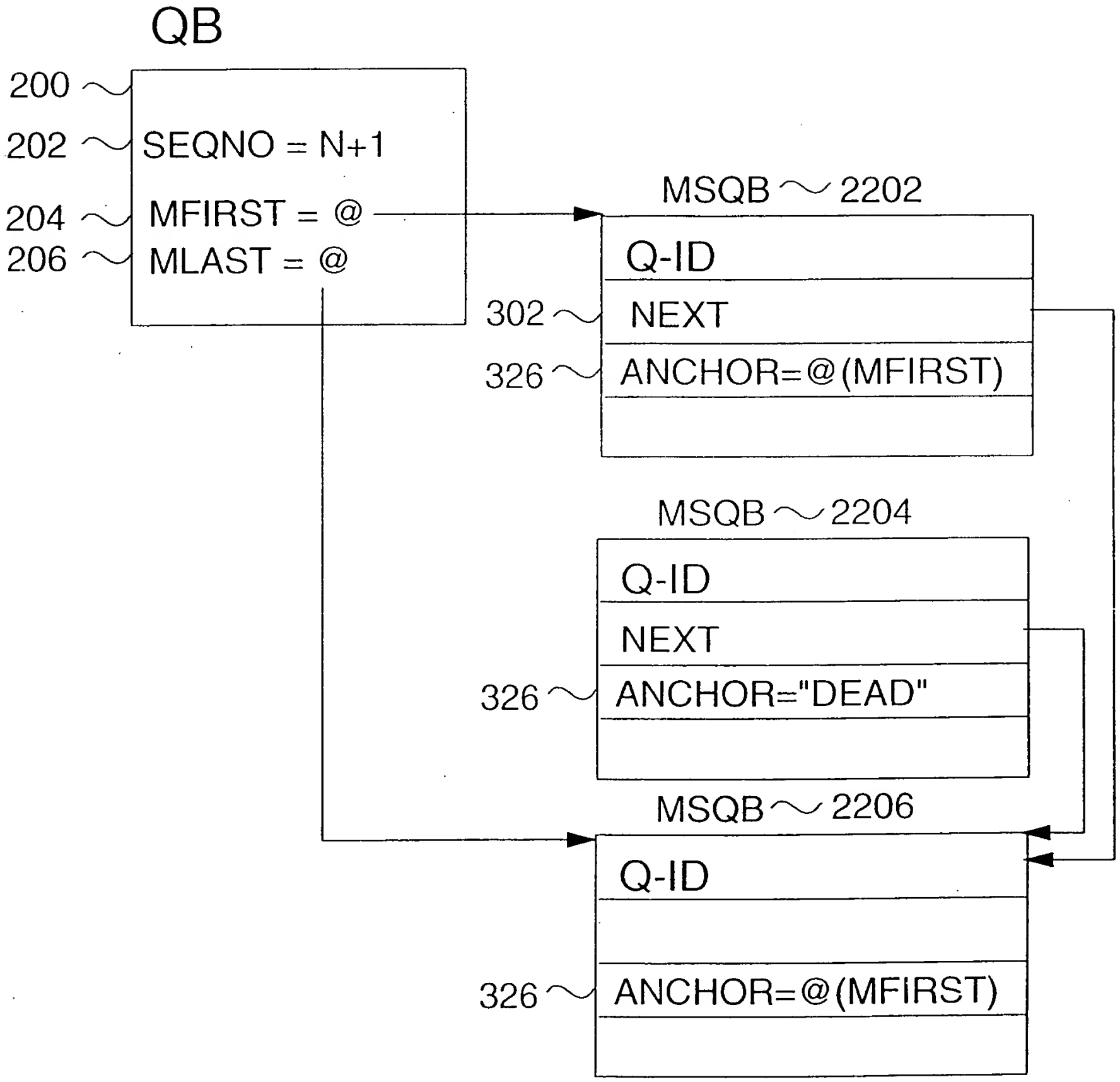


Fig 22B

PLO CHAIN DEAD ELEMENT - BEFORE

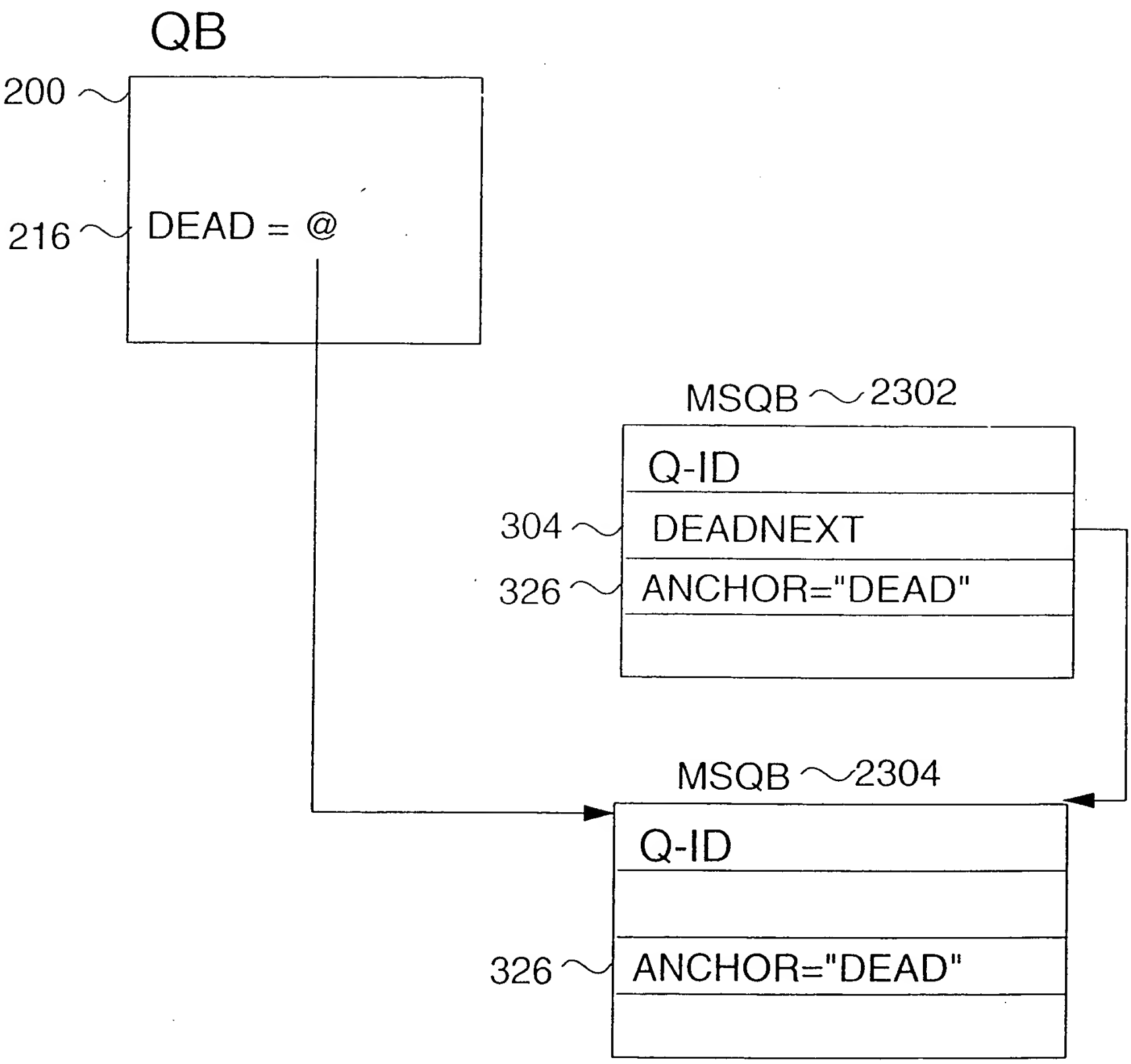


Fig 23A

PLO CHAIN DEAD ELEMENT - AFTER

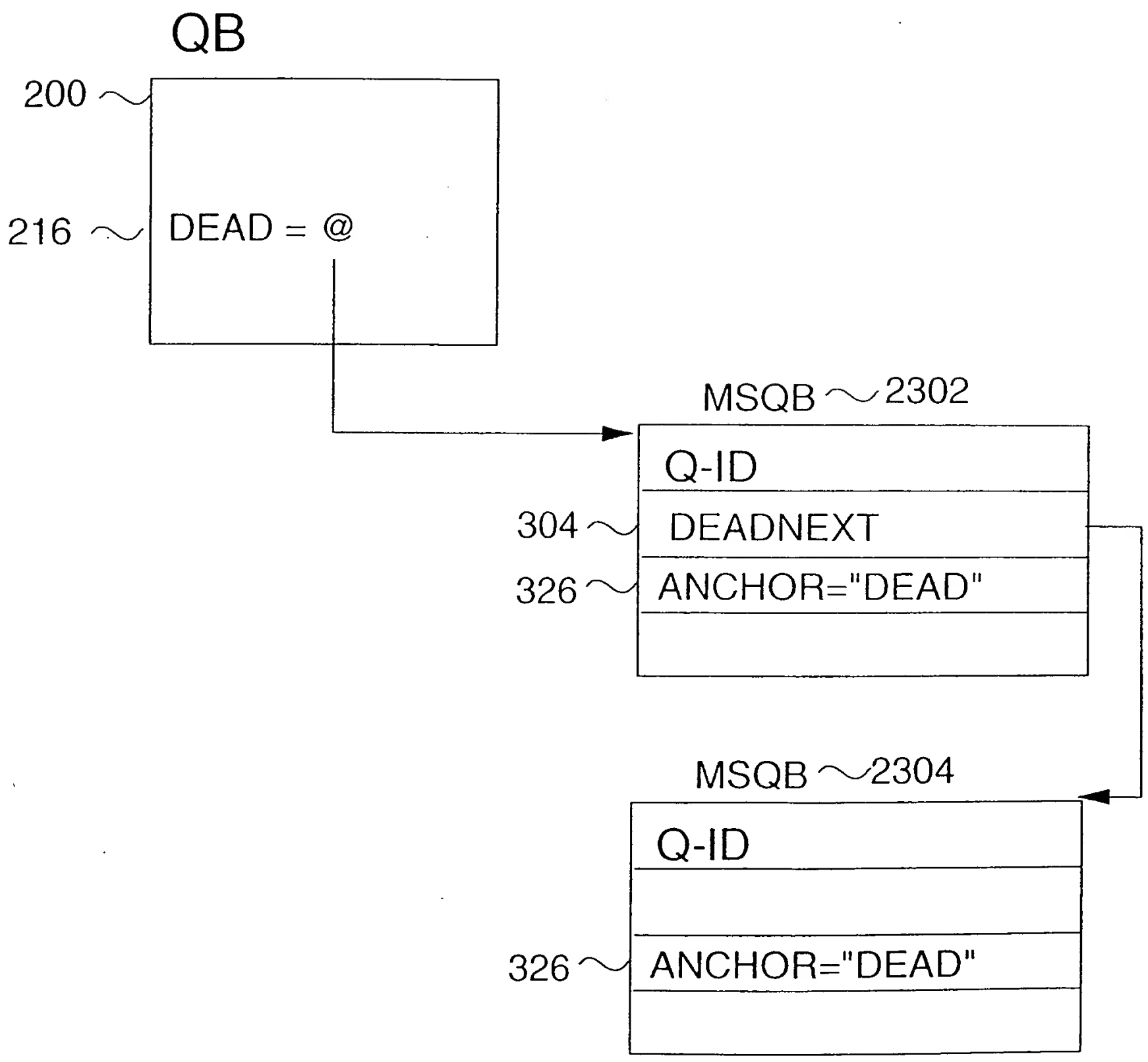


Fig 23B

MESSAGE QUEUE RECEIVE RECOVERY

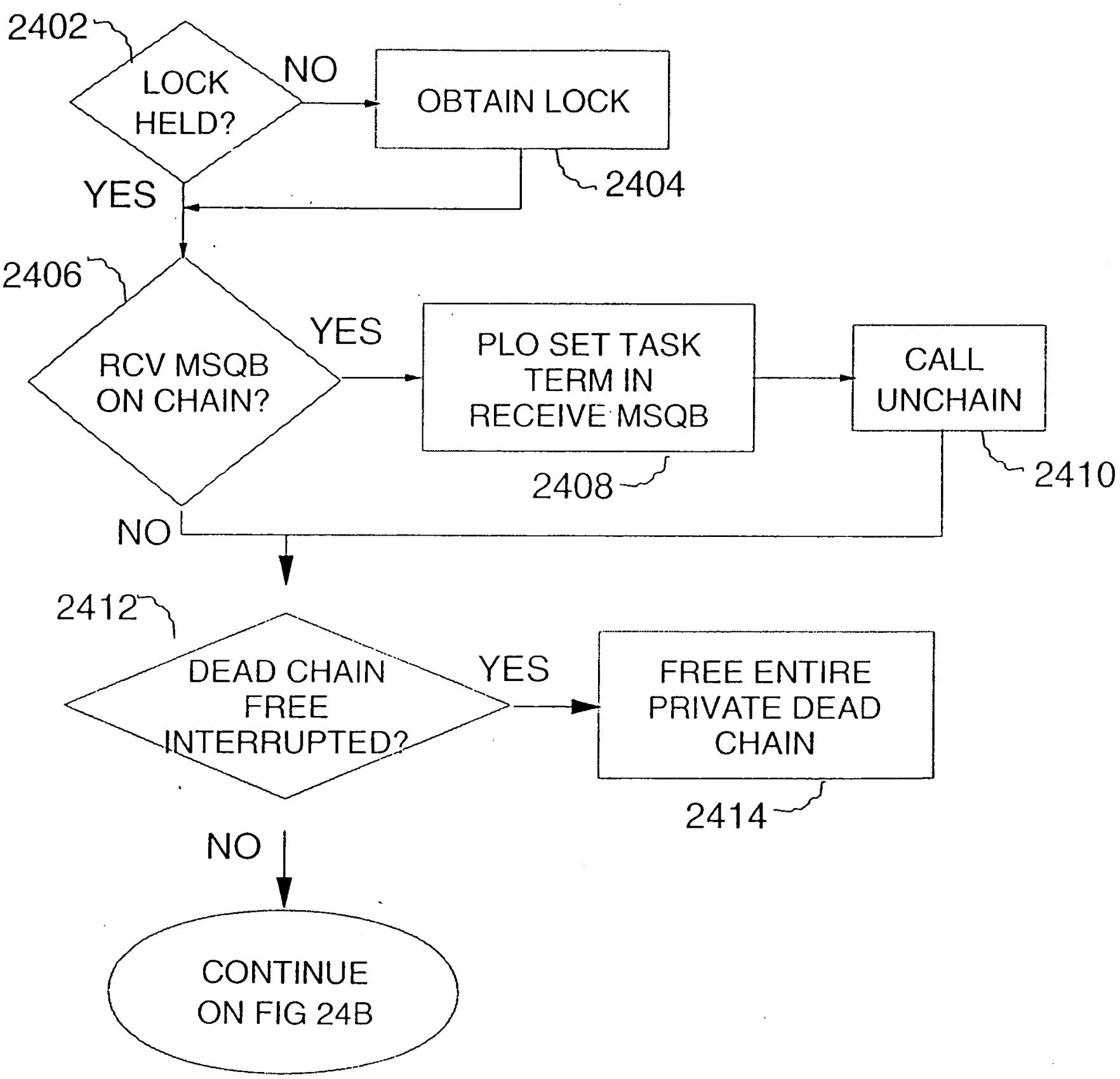


Fig 24A

MESSAGE QUEUE RECEIVE RECOVERY - CONT

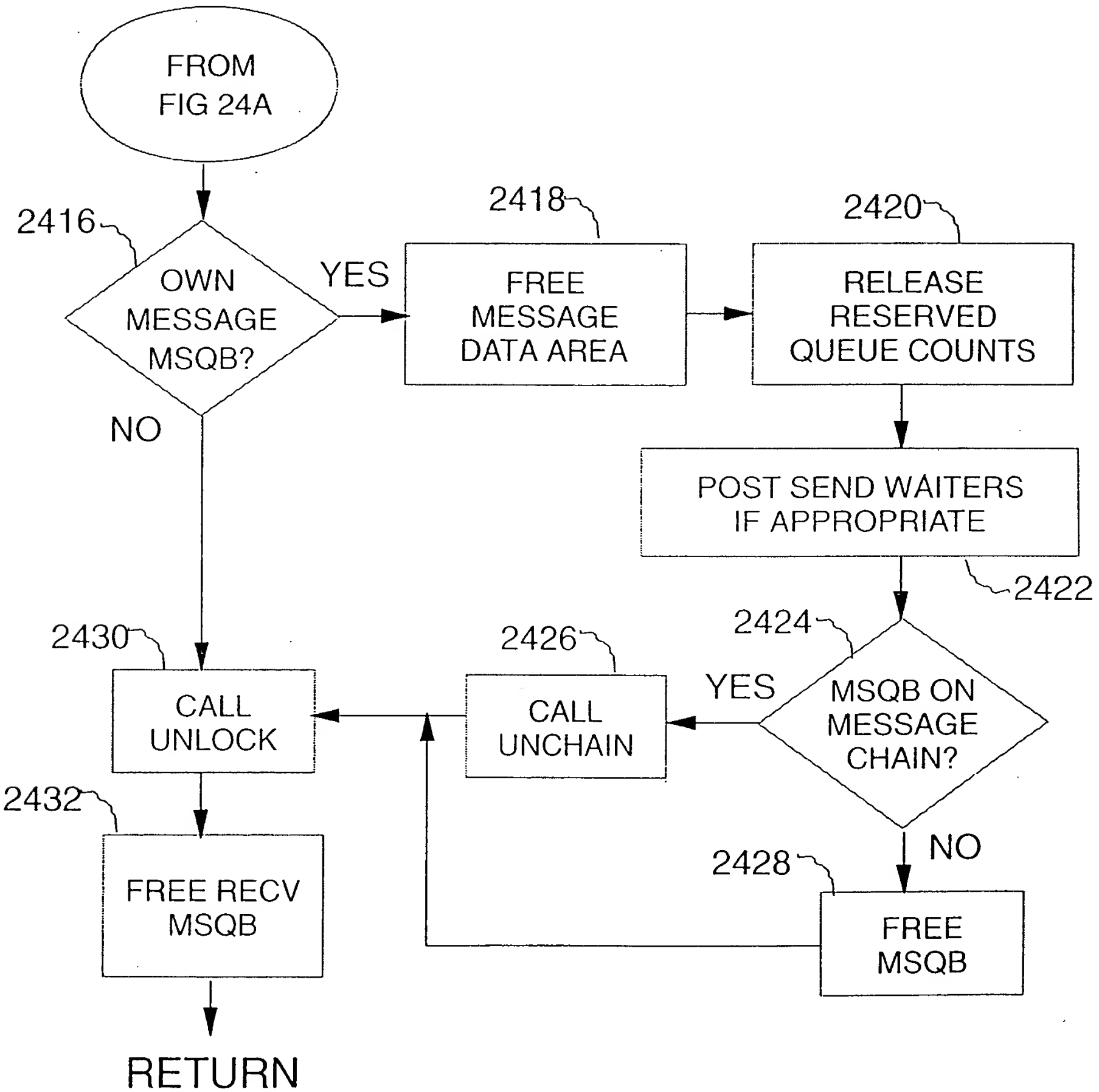


Fig 24B

MESSAGE QUEUE SEND RECOVERY

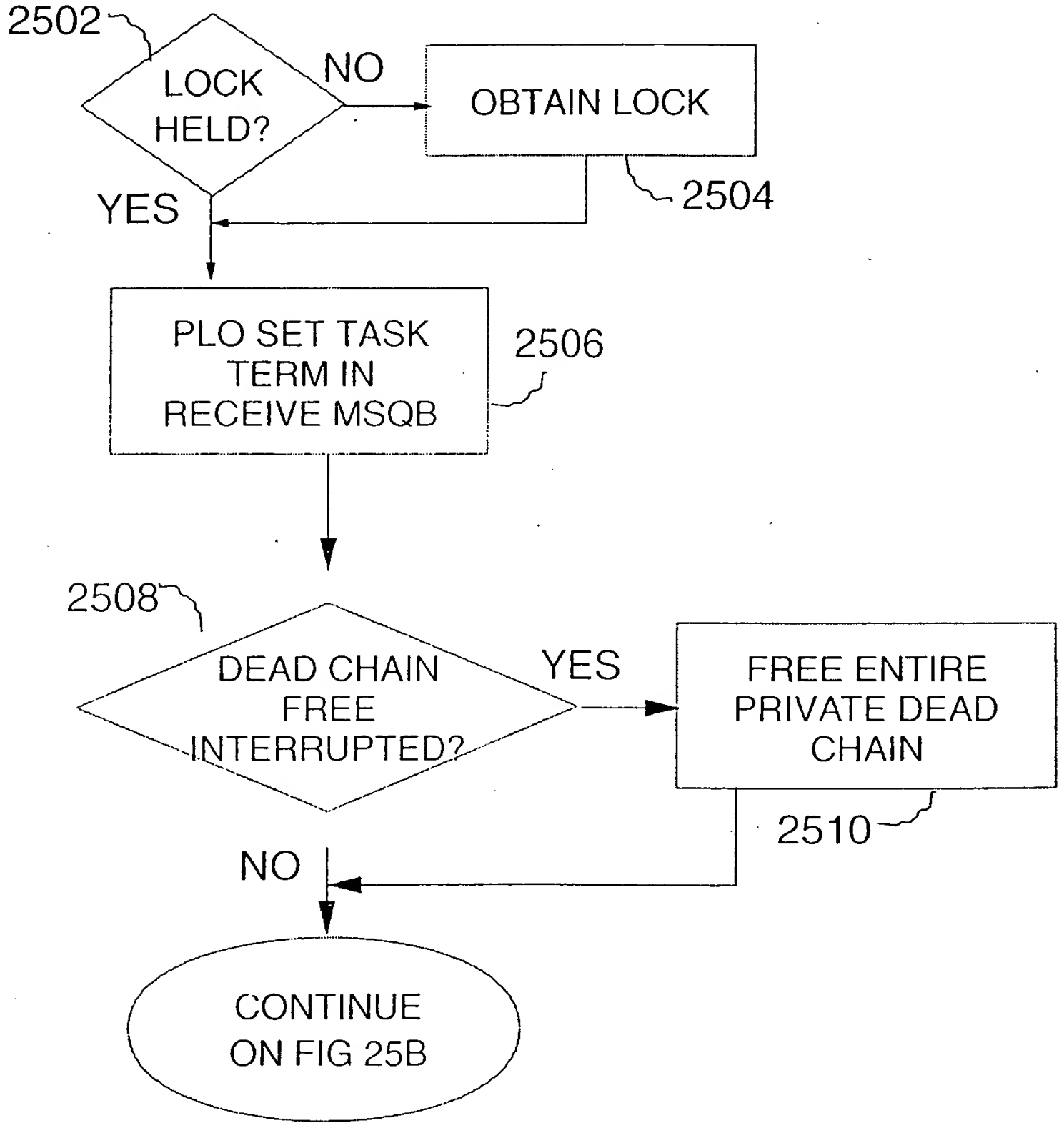


Fig 25A

MESSAGE QUEUE SEND RECOVERY - CONT

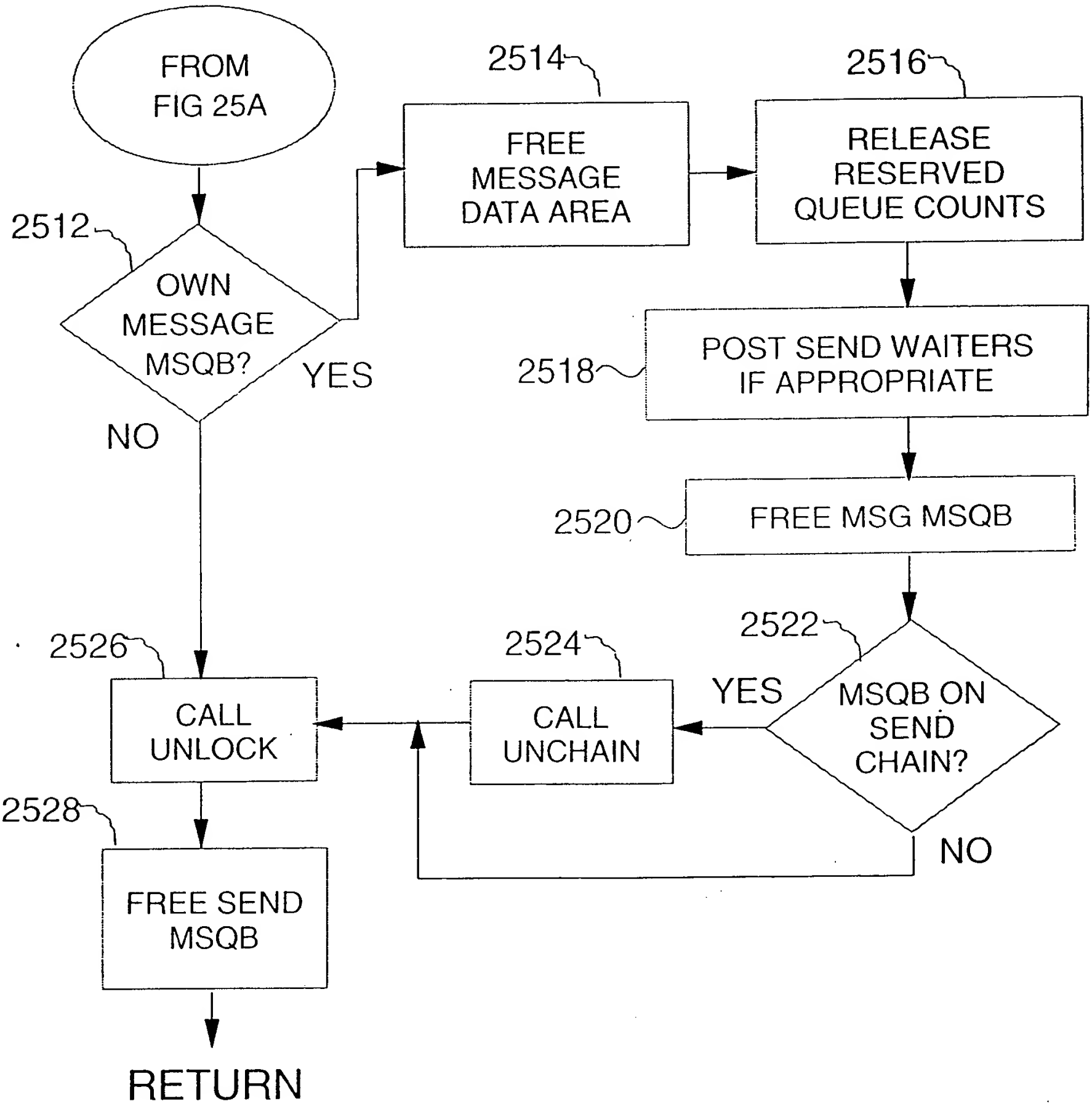


Fig 25B